PALESTINE.

11/31

DEPARTMENT OF HEALTH

ANNUAL REPORT

FOR THE YEAR

1931.

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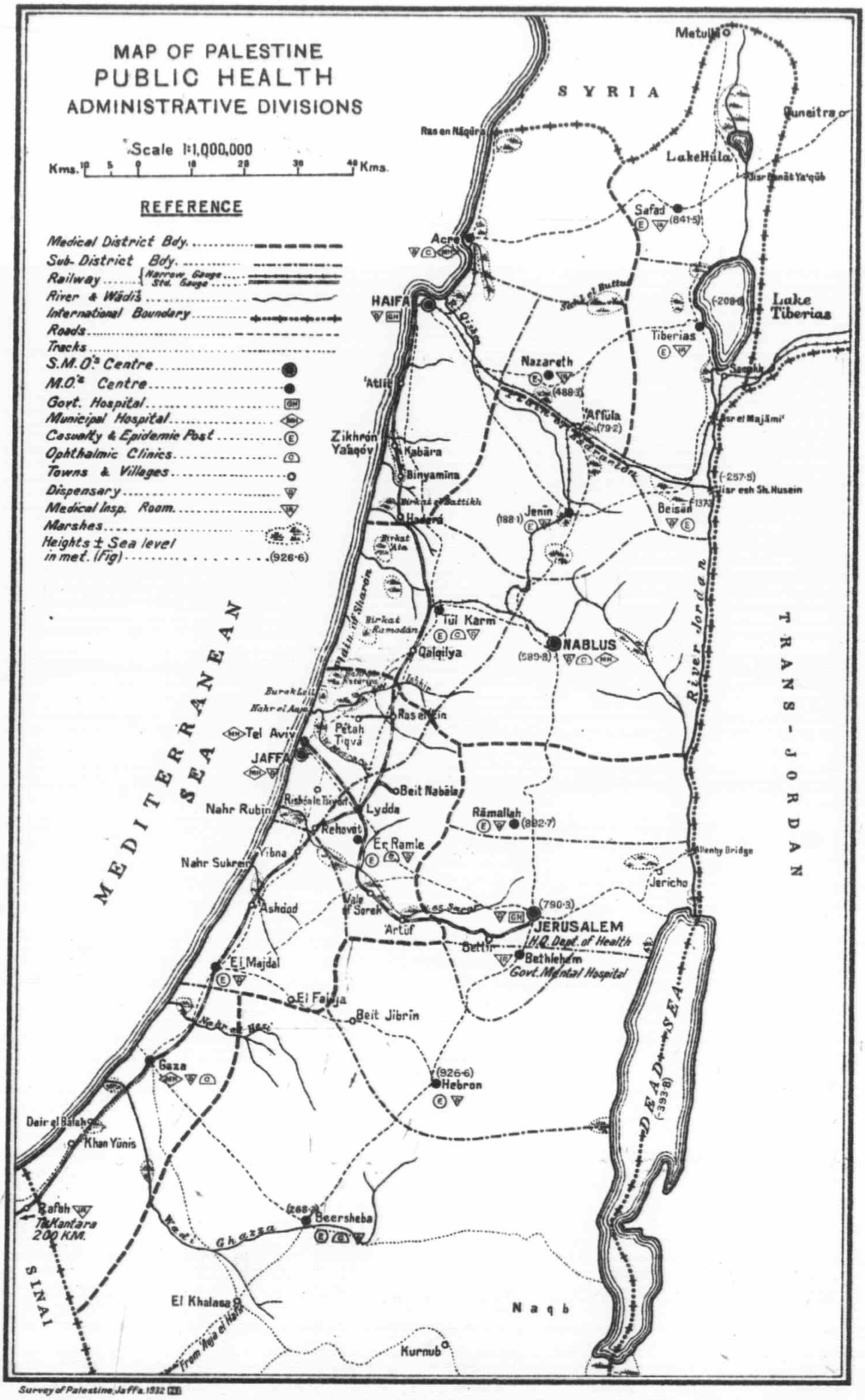

Survey of Palestine, Jaffa, 1932

ANNUAL REPORT — 1931.

INDEX.

Sections.

I. GENERAL CONSIDERATIONS: 1—11
- A. Administration ... 1
- B. Finance ... 5
- C. Public Health ... 7
- D. Industrial Conditions ... 10
- E. Municipal Sanitary Services ... 11

II. VITAL STATISTICS AND EPIDEMIC DISEASES: 12—30
- 1. Vital Statistics ... 12
- 2. Epidemic Service ... 19
- 3. Training of Personnel ... 19
- 4. Disinfection ... 19
- 5. Infectious and Communicable Disease ... 19
- 6. Vaccination against Small-Pox ... 21
- 7. Malaria and Antimalaria Measures ... 25
- 8. Hydrophobia ... 30

III. MEDICAL SECTION: 31—57
- 1. Government and Municipal Hospitals ... 31
- 2. Medical care of British Community by Specialist Surgeon ... 31
- 3. Medical care of British Community by S.M.O. Railways ... 34
- 4. Government Dispensaries ... 35
- 5. Voluntary Hospitals and Clinics ... 35
- 6. Training of Nurses ... 36
- 7. Maternity and Child Welfare ... 45
- 8. Ophthalmic Service ... 47
- 9. Lunacy ... 49
- 10. School Medical Service ... 51
- 11. Railway Medical Service ... 52
- 12. Police and Frontier Force Medical Arrangements ... 53
- 13. Prison Medical Service ... 53
- 14. Training in First Aid ... 53
- 15. The Medical Commission ... 54
- 16. Medico-Legal Examinations ... 56
- 17. The Practice of Medicine, Pharmacy, Dentistry and Midwifery ... 56
- 18. International Opium Convention ...

VI. SANITARY ADMINISTRATION: 58—61
- 1. Water Supplies ... 58
- 2. Sanitary Engineering Section ... 58
- 3. Municipal Sanitary Services ... 59
- 4. Village Sanitation ... 60
- 5. Licensing and Control of Trades and Industries ... 60

V. RELIEF: 60

VI. QUARANTINE SERVICE: 62
- 1. General ... 62
- 2. Port Quarantine ... 62
- 3. Medical Surveillance of Travellers ... 62
- 4. Moslem Pilgrimage ... 62
- 5. Immigration ... 62

VII. LABORATORY SECTION: 64—86
- A. Bacteriological Division ... 65
- B. Entomological Division ... 80
- C. Chemical Division ... 81

APPENDIX:
- I. List of Statistical Tables Arranged Alphabetically ... 87

GOVERNMENT OF PALESTINE.

ANNUAL REPORT

OF THE

DEPARTMENT OF HEALTH

FOR THE YEAR

1931.

I. GENERAL CONSIDERATIONS.

A. ADMINISTRATION.

1. Personnel.

Dr. N.M. Maclennan was transferred to Northern Rhodesia as Senior Health Officer on 8th October, 1931.

Dr. V.L. Ferguson was appointed Senior Medical Officer to fill the vacancy on the Establishment.

Dr. J.M. Shapiro was appointed Medical Entomologist on a temporary basis to fill the vacancy on the Establishment.

Dr. A. Khartabil was appointed Medical Officer to replace Dr. F. Dejani, resigned.

On the occasion of His Majesty's Birthday, Dr. Zahi Haddad, Medical Officer of the Department, was appointed Honorary Member of the Order of the British Empire.

Miss L.B. Fielder, British Nursing Sister, replaced Miss I.K. Young, resigned.

The following additional posts were approved in the 1931 Departmental Estimates:—

A Medical Entomologist.

A Motor Disinfecting Lorry Driver, for Jaffa District.

An Asst. Dispenser Grade V, for Railways.

An Anti-Malaria Sub-Inspector, for Jericho.

A Laboratory Attendant, Grade IV, for Entomological Work.

A Laboratory Attendant, Grade V, for Analytical Work at Haifa.

Four Sanitary Sub-Inspectors for Jewish Colonies.

The following was the distribution of staff at the end of the year:—

Appointment	Class	Name	Station
Headquarters and District Administration.			
Director,	"C"	Colonel G.W. Heron, C.B.E., D.S.O.	Jerusalem
Deputy Director, (Hospital and Medical Section)	"E"	J.W.P. Harkness	Jerusalem
Asst. Director (Laboratory Section)	I	G. Stuart, O.B.E.	Jerusalem
Senior Medical Officer at H. Qrs. in charge of Sanitary and Epidemic Section	I	A. Rankine, M.C.	Jerusalem
Senior Medical Officer (Jerusalem District)	I	W.P.H. Lightbody	Jerusalem
Senior Medical Officer (Jaffa and Gaza Districts)	I	N.M. Maclennan	Jaffa
Senior Medical Officer (Haifa and Quarantine)	I	J. Macqueen	Haifa
Senior Medical Officer (Samaria and Galilee)	I	W.K. Bigger, M.C.	Nablus
Senior Medical Officer (Endemic Diseases)	I	V.L. Ferguson	Jerusalem
Senior Medical Officer (Railways)	I	J.H. Thompson	Haifa
Surgeon Specialist.	I	W.E. Thompson	Jerusalem
Chief Clerk	3	C. Morrall	Jerusalem
Hospital and Medical Service.			
Asst. Senior Medical Officer (Hospital and Schools)	3	D. Bulos, M.B.E.	Haifa
Asst. Senior Medical Officer (Training School)	3	H.F. Khalidi	Jerusalem
Medical Officer (Hospital)	3	Y. Hajjar	Jerusalem
Medical Officer (Mental Hospital and District)	3	M.S. Maloof	Bethlehem
Medical Officer (Hospital and Laboratory)	3	R. Reitler	Jaffa
Medical Officer (Casualty Post, Ophthalmic Clinic and Schools)	3	S. Bodossian	Ramleh
Medical Officer (Hospital, Ophthalmic Clinic and Schools)	3	F.I. Haddad	Acre
Medical Officer (Hospital and Schools)	3	H.S. Khalidi	Jaffa
Medical Officer (Schools)	3	K. Keshishian	Jerusalem
Medical Officer (Hospital, Ophthalmic Clinic and Schools)	3	N. Hamzeh	Nablus
Medical Officer (Hospital and Special Clinic)	3	A.T. Sternberg	Jerusalem
Medical Officer (Ophthalmic Clinic and District)	3	I. Itayim	Tulkarem
Medical Officer (Hospital and Ophthalmic Clinic)	3	S. Shihab	Gaza
Medical Officer (Hospital and Laboratory)	3	A. Malchi	Haifa
Medical Officer (Hospital, Ophthalmic Clinic and District)	3	S. Yassin	Beersheba
Medical Officer (Special Clinic)	3	M.A. Shukair	Hebron
Inspector of Pharmacies	3	Farid Haddad	Jerusalem
Matron	Special	Miss E. Dickin	Jerusalem
"	"	Miss L.J. Hanson	Nablus
"	"	Miss E. Davies	Haifa
"	"	Miss I.G. Cooper	Jaffa
Matron, Mental Hospital	"	Miss F.I. Channel	Bethlehem
British Nursing Sister	"	Miss L.B. Fielder	Jerusalem
" " "	"	Miss I.E. Cowan	Haifa
" " "	"	Miss I. Freeth	Jerusalem
" " "	"	Miss M.E. Lloyd	Jerusalem
" " "	"	Miss E.N. Bruce	Jerusalem
" " "	"	Vacant	—
Superintendent of Midwifery	"	Miss V.W.E. Rogers	Jerusalem
Superintendent of Midwifery	"	Miss C.M. Beville	Nablus
Sanitary and Epidemic Section			
Sanitary Engineer	2	L. Cantor	Jerusalem
Asst. Sanitary Engineer	3	M.Y. Samaha	Jerusalem
Asst. Senior Medical Officer	3	R. Oplatka, M.B.E.	Tel-Aviv
Asst. Senior Medical Officer	3	H. Abu Rahmeh, M.B.E. *)	Amman
Asst. Senior Medical Officer	3	M. Shishmanoglou	Jaffa
Asst. Senior Medical Officer	3	J. Tucktuck	Haifa
Asst. Senior Medical Officer	3	Z. Haddad, M.B.E.	Nablus
Medical Officer	3	F.K. Abla	Majdal

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*) **Seconded as Director of Public Health, Trans-Jordan.**

Appointment	Class	Name	Station
Medical Officer	3	A. Abdel Al, O.B.E.	Hebron
,, ,,	3	K. Abu Ghazaleh	Jenin
,, ,,	3	G.E. Ayoub	Jaffa
,, ,,	3	M.B. Erdekian	Acre
,, ,,	3	I. Haurani	Gaza
,, ,,	3	K. Eid	Ramallah
,, ,,	3	Taher El Khatib	Nablus
,, ,,	3	M.K. Mishalany	Nazareth
,, ,,	3	A.A. Shehadeh	Haifa
,, ,,	3	F. Shubeita	Jaffa
,, ,,	3	E. Sukkarieh	Safad
,, ,,	3	A. Haddad	Ramleh
,, ,,	3	J. Hassoun	Haifa
,, ,,	3	A.M. Shehadeh	Jerusalem
,, ,,	3	S. Saleem, O.B.E.	Jerusalem
,, ,,	3	H.M. Torian	Tiberias
,, ,,	3	A.K. Khartabil	Nablus
Medical Officer (Tuberculosis Survey)	3	Vacant	—
Inspector of Trades and Industries	3	G.R.P. Witts	Jerusalem

Quarantine Section.

Asst. Senior Medical Officer	3	Y. Chami, M.B.E.	Jaffa
Medical Officer	3	B. Franco	Haifa

Laboratory Section.

Government Analyst	2	G.W. Baker	Jerusalem
Bacteriologist	3	K.S. Krikorian	Jerusalem
Asst. Bacteriologist	3	M.S. Dabbagh	Jerusalem
Asst. Analyst	3	W.J. Itayim	Jerusalem
Medical Entomologist	3	J.M. Shapiro	Jerusalem

Training of Personnel.

Dr. J. Macqueen passed the examinations for the 1st Part of the Diploma in Public Health at the University of Edinburgh.

Dr. J. Macqueen passed the Clinical examination, and had the degree of M.D. of the Edinburgh University conferred upon him. His thesis entitled "A study of Endemic Syphilis in Palestine", was starred as "Commended".

Study leave was granted to Dr. W.P.H. Lightbody to allow him to take the second part of the Diploma in Public Health.

Dr. S. Bodossian was granted 4 months' study leave during which period he attended courses of instruction in Ophthalmology in Paris and Midwifery and Nutritional disorders of Infancy in London.

Dr. H.S. Khalidi was granted 3 months' study leave to enable him to take a post graduate course of Surgery in Egypt.

During the year 12 Nurses of the Department completed their training and qualified as graduate nurses.

Eleven graduate nurses and six pupil midwives were trained in the Government Maternity Centre and were awarded the Certificate of Midwifery.

Two Departmental graduate nurses were trained in ophthalmic nursing at the hospital of the Order of St. John in Jerusalem.

First Aid.

The following personnel were trained and examined in First Aid, and awarded the certificate of the St. John Ambulance Association:—

Department of Health Personnel	15
Police	62
Others	4

Training in Sanitation.

During the year two Departmental courses of instruction in Sanitation were held; one elementary course and one advanced course.

The elementary course was attended by 24, of whom 9 successfully passed the examinations in the various subjects.

The advanced course was attended by 19 of whom 7 were awarded the "Sanitary Sub-Inspector's Certificate".

2. Ordinances, Regulations, etc.

The following Laws and Regulations affecting the Department have been enacted during the year:—

Subject.	Official Gazette No.	Official Gazette Date
Trades and Industries Ordinance, 1927. Amendment of Schedule, Cattle Sheds.	276	1.2.31
Trades and Industries Ordinance, 1927. Order applying Ordinance to villages of Isdud and Yebna	278	1.3.31
Rabies Rules, 1931 (Muzzling etc.)	280	1.4.31
Dangerous Drugs Ordinance. Additions to Schedule.	280	1.4.31
Town Planning Bye-Laws made applicable to Nablus.	280	1.4.31
Town Planning Bye-Laws, Section VII — Requirements of the Health Authorities as to Drainage and Plumbing	283	16.5.31
Pharmacy Ordinance 1921-30 — Rules governing the granting of Licenses to practise the profession of Pharmacy.	284	1.6.31
Agreement between the Health Authorities of Palestine and Egypt concerning measures to be applied for the control of Dengue Fever	289	16.8.31
Quarantine Ordinance, 1922 — Travellers entering Palestine from Syria or Iraq.	291	16.9.31
Regulations under Prison Ordinance, 1921 — Release of Prisoners on Medical Grounds.	294	1.11.31
Sewerage and Drainage (Amendment) Ordinance, 1932.	297	16.12.31

3. Revenue and Expenditure.

The following is a summary of the Estimates and Expenditure for the financial year 1931. The comparative total figures of estimates of expenditure for previous years are given below:-

Revenue.			Expenditure.	
1. 1. 31 to 31.12.31	£P. 9,950	A. Personal Emoluments	£P. 79,140	
		B. Other Charges.	£P. 32,201	£P.111.341

Detail of Other Charges.

Transport and Travelling	£P. 6,450
Railway Fares and Freight	2,000
Lighting, Heating and Electrical Supply	1,600
Drugs, Dressings and Instruments	5,100
Vaccine and Sera	500
Equipment and Stores	2,000
Disinfectants and Maintenance of Disinfecting Machines	1,500
Hospital Diets	7,396
Clothing	1,324
Epidemic Outbreaks	200
Antimalaria Measures	500
Medical attendance in Private Hospitals	800
Relief	52
Contribution to Tropical Diseases Bureau	60
Contribution to Seamen's Hospital	11
Contribution to Colonial Medical & Sanitary Advisory Committee	27
Contribution to Permanent Commission of the Office International d'Hygiene Publique	30
Fees for Notification of Births and Deaths in Villages	500
Medical Library	80
Allowances to Officers attending Courses of Instruction	300
Services rendered by the Quarantine Board of Egypt	100
Telegrams, Telephones and Postage	1,200
Honorarium to Medical Officer of Sinai Military Railways	50
Contingencies	100

Special Expenditure.

Motor Disinfecting Lorry	321
	£P. 32,201

	Revenue.		Expenditure.	
1930	£P. 9,860	A. Personal Emoluments	£P. 76,143	
		B. Other Charges	£P. 32,408	£P. 108,551
1929	10,350	A. Personal Emoluments	£P. 73,694	
		B. Other Charges	£P. 29,885	£P. 103,579
1928	10,480	A. Personal Emoluments	£P. 74,080	
		B. Other Charges	£P. 31,380	£P. 105,460
1927 (9 months)	£E. 7,320	A. Personal Emoluments	£E. 52,948	
		B. Other Charges	£E. 24,955	£E. 77,903
1926-27	13,830	A. Personal Emoluments	£E. 68,987	
		B. Other Charges	£E. 28,692	£E. 97,679
1925-26	9,050	A. Personal Emoluments	£E. 63,140	
		B. Other Charges	£E. 21,341	£E. 84,481
1924-25	9,570	A. Personal Emoluments	£E. 61,791	
		B. Other Charges	£E. 20,632	£E. 82,423
1923-24	11,590	A. Personal Emoluments	£E. 64,226	
		B. Other Charges	£E. 29,032	£E. 93,258
1922-23	8,720	A. Personal Emoluments	£E. 72,508	
		B. Other Charges	£E. 32,860	£E. 105,368
1921-22	8,158	A. Personal Emoluments	£E. 70,914	
		B. Other Charges	£E. 82,795	
			£E. 153,709	
Less estimated cost of Railway Medical Service.			£E. 10,824	£E. 142,885

The Palestine Government Estimates of Revenue and Expenditure for the financial year under review were as follows:—

Revenue	£P.2,533,100.	Expenditure	£P.2,531,518

B. Finance.

The estimated expenditure for 1931 was approximately £P. 2790 in excess of that of 1930. Of this amount £P. 1102 was accounted for by normal increments of salary.

The Government estimates as a whole were not, however, approved, so that each item that involved an increase required separate approval.

A small increase of staff was necessary at the Bethlehem Mental Hospital on account of an expansion of bedstrength by 15 beds, rendered possible by construction of two dining pavilions.

The Medical Entomologist, in view of the approach of the O'Donnell Economy Commission, was appointed temporarily only, and the 4 Sub-Inspectors from the Malaria Research Unit were similarly placed on this basis of employment.

Within the year and subsequent to the Report of the O'Donnell Commission, very considerable economies definitely prejudiced the efficiency of the Public Health Service, and unless posts and services reduced are eventually restored, there will be a decline rather than an expansion in the measures necessary for the control of epidemic and endemic disease. Such a decline may seriously affect the economic development of the country in which tuberculosis, syphilis, ankylostoma, as well as malaria, are so prevalent.

The first of the economies was (a) that of a post of Senior Medical Officer, rendered vacant by a recent transfer. This economy disposed of the employment of a Senior Medical Officer on the investigation and treatment of endemic diseases. Other economies were (b) the Medical Entomologist recently appointed temporarily, (c) two Medical Officers (Epidemic), (d) four sub-inspectors, (e) Inspector of Trades and Industries, (f) reduction of clerical staff, (g) closure of Beersheba Hospital, (h) reductions in "Other Charges" under several items. Hospital diets were reducible on account of remodelling of the diet. Smaller amounts were reduced under other items.

The Chemical Laboratory of the Department of Agriculture was incorporated in the Laboratories of the Department of Health and thereby an annual saving to Government of about £P.600 will be achieved. The proposal to incorporate also the Veterinary Laboratory was examined carefully but not found feasible.

Of very serious import was the decision to postpone the construction of the new Mental Hospital. As an indication of the seriousness of this postponement there occurred, in the autumn, the virtual financial collapse of the Ezrath Nashim Society (Jewish) and the Mental Hospital dependent on that Society. This led to a decision being taken by Government on the recommendation of the Department, to establish in an available building in Bethlehem an annex to take 50 mental cases and thence to relieve the Ezrath Nashim of 30 cases, and to make room for 20 others of the dangerous cases out of 100 still at large.

We have, therefore, to look forward to a second temporary expedient for the accommodation of lunatics with its attendant difficulties and dangers of management.

The very heavy reductions in the contributions from abroad to the Hadassah Medical Organization was followed by a closure of wards for general cases in the Hadassah Hospital at Haifa and a reduction in their financial commitments in respect of the Tel-Aviv Hospital. In the case of Tel-Aviv, after drastic cuts had been made on the initiative of the Department of Health in the excessive recurrent expenditure in the Hospital, the Hadassah undertook 50% only of the expenditure. The Municipal contribution had, therefore, to be increased, and an additional £P.500 was added by the Government under certain conditions as to control which have not yet been put into effect.

In the case of Haifa, it was decided by Government that assistance must be given in view of the inadequate hospital provision made by Government for patients as a whole in Haifa and Northern District. A scheme was, therefore, put forward by the Department to increase the bedstrength of the Government Hospital, Haifa, by 50 beds, to close down Acre Hospital and to provide ambulance transport from Tiberias to Haifa. The scheme was the most economical possible and was accepted by Government and will materialize in due course. Meanwhile, a small temporary expansion of 10 beds to meet Jewish emergencies was adopted.

All charitable hospitals are feeling the general financial depression, and contributions have declined considerably. Many hospitals are conducted at half of the nominal bedstrength, and treatment fees are demanded from practically all patients admitted or attending.

Very few Municipalities recorded any notable improvements in their public services. They have no donbt felt the financial stringency, but their revenues did not appear to have declined to any material extent, nor did necessity seem to demand any curtailment of their normal recurrent expenditure. In several instances such curtailment would seem to be indicated in order to allow of useful development in other directions.

Water supplies, except in a few smaller places, did not improve. Main drainage is still conspicuous by its absence. Capital funds have not been available for such enterprises though the local authorities in Jaffa, Haifa and Jerusalem have made considerable strides in developing subsidiary drainage systems from credits put forward by the communities concerned.

Apart from reasons of health and of amenities for the public, it is imperative that pure water supplies and adequate sewerage should be established in the larger towns if economic development is to proceed.

Municipalities, deprived as they are of a source of revenue by the public supply of electricity, should be given opportunities of making reasonable profits out of a public water supply.

In the case of Jerusalem, at a cost of about £P. 10.000, reconstruction was carried out of a portion of the Old Roman Sewer lying in the Tyropoean Valley in the Old City. This remarkable old masonry sewer had caved in at several points and its lumen was obstructed. During the excavation, a wall, supposed to be King David's wall was exposed and there is reason to believe that on this wall rests the Roman bridge described as Wilson's Arch which spans this valley but is now covered by 30 feet of debris and by masonry houses four storeys high. An additional length of this sewer will require reconstruction in the near future.

The contract for the Jaffa Road—Mamilla Section of the main drainage of Jerusalem was adjudicated and work will commence at an early date. The credit of £P.40,000 will cover only the construction of the main sewer of one section of the sewerage of Jerusalem without lateral drains, which will have to be completed by private enterprise. The subsequent adjustment of contributions of drainage tax under the terms of the Drainage Ordinance will be difficult.

No credit was made available for the construction of the main sewage collector at Haifa where the situation is serious.

In towns and villages, the following have developed or improved existing water supplies and drainage out of revenue or by means of Agricultural loans :—

Water Supplies.— Deir Ayoub, Yalo, Beit-Inan, Beit Dikko, Beer-Zeit, Wad Fukin, Urtas, Dura, Jinjar, Sarid, Kfar Baruch, Affula, Kefar-Kanna, Kafrein, Manshieh, Lydda, Hamameh, Huj, Barbara.

Drainage.— Hamameh, small sewer in Bethlehem, small sections in Tel-Aviv.

The financial conditions in colonies and villages, due to bad crops and a rapidly increasing population, have been serious and have not allowed any development. The numbers of those attending Government clinics increased, but payments of treatment fees declined. The population responded well to our demands for free labour for anti-malarial clearance of wadies and drainage and much good work was done and the reclamation of swamp areas advanced.

The Jewish Hospitals of the Hadassah Medical Organization and the Qupat Cholim have been constantly full up to their capacity. The latter, supported by the contributions of some 19,000 workers under a voluntary Health Insurance Scheme, suffered by a reduction in the annual grant from the Jewish Agency, and have asked for Government assistance or a compulsory Insurance Scheme.

It is clear that the reductions in charitable and voluntary contributions towards the provision of medical aid, which has been such a feature in Palestine in the past, will inevitably have to lead to an increase in the provision of hospital and dispensary facilities by the Government. With a diminishing general revenue and a consequent reduction in credits allotted to the Department of Health, the outlook for the future is not encouraging.

It is on the side of infectious disease that we are so unprepared. Our preventive and control measures are satisfactory up to the point where infectious hospital accommodation arrives, and there we are very unsatisfactorily situated and it would be very difficult to cope with any large epidemic.

C. PUBLIC HEALTH.

1. General Considerations.

The death rate at 24.24 per 1000 was 1.10 per 1000 higher than for the previous year. The death rate amongst the Jewish population was approximately the same at 9.71.

A higher incidence of pneumonia, measles and typhoid fever accounted for the small increase in the death rate. The infant mortality rate under 1 year at 170 per 1000 births compares with 154 for the year 1930.

The Moslem rate of 187 compares unfavourably with that of 81 for the Jews. The reasons for this, as pointed out in the report of 1930, are clearly due to the adequate chain of Infant Welfare Centres, numbering 24 for a population of 169,576, established by voluntary funds for the Jewish infants, and to the fact that the majority of Jewish confinements take place in hospital.

The Arab infants are very inadequately provided for in this respect with 17 centres for a population of 608,105. I do not foresee any material reduction in the infant mortality amongst Arabs until the number of centres is multiplied, and increased hospital provision is made for cases of difficult labour.

The birth rate at 52.75 is almost identical with that of 1930, as also are figures for Moslems at 60.29 and Jews at 32.66. The natural increase of population was 28.5 per 1000 of population — Moslems at 30.67 and Jews at 22.95. These figures are alarming in light of the apparent impossibility of providing an outlet for the population which is already in a state of financial depression, and will soon be unable to feed itself. The high Moslem figure suggests that the fellaheen are not yet feeling the pinch of hunger, but when this occurs the death rate is likely to go up and the birth rate down.

The poverty in the villages was more marked, and in certain districts, notably in Hebron district, the conditions are appalling and it is surprising that disease is not more rampant.

House building in towns continued and, with the advance in public security, that unhealthy overcrowding which is such a feature in the Middle East is gradually being overcome. There appears to have been a tendency recently for the Arab to place his savings, or profits on land sales, into house property.

The housing situation for the workman, however, in Haifa, is becoming very serious on account of the very large increase of population and the migration from villages to the town in search of labour. Wooden and "tannaki" shacks are springing up everywhere without any authorization, and it has proved quite impossible to remove them without providing some alternative accommodation.

The S.M.O. states "Problems of poverty and unemployment resulting from the natural increase of the population, aggravated by economic depression, are bound to present themselves soon. How are they to be dealt with? Depression, generally, makes itself earliest and most acutely felt in the larger towns. It will thus be our Municipalities that will be called upon to handle the difficult situation which will arise". Are these bodies capable of dealing with a serious problem of this sort? In the face of a situation so serious as that which might well be presented by unemployment combined with poverty, they would be helpless, and a policy requires to be outlined for Municipalities and consistently followed, if reasonable conditions of health and immunity from widespread epidemics are to be maintained.

The School Medical Service continued to occupy that important position that it deserves, and all school children were under medical observation during the year. The satisfactory results of the continual treatment for trachoma, from which some 52% of the children suffer, is more apparent when one observes the children in the schools, than it is from the statistical figures which continue to record the 3rd and 4th stages of comparative, though not actual, cure. The cleanliness of the persons of the school children again was a matter for remark, more especially in the girls' schools where a very efficient regime is practised. Practical training of school girls in Infant Welfare has been undertaken in several centres and the scheme will, I trust, be extended as more Infant Welfare Centres are established.

At Nablus, Hebron, and Acre, the results of the Infant Welfare training were encouraging and if continued on a larger scale should prove of great value in the training of the future mothers of Palestine. The task of converting the mothers, so difficult of accomplishment with the existing generation, to the modern ideas of infant hygiene, should be much facilitated.

It is unfortunate that the conditions of overcrowding and insanitation in Government schools cannot be overcome until a large building programme is put into effect. The Men's Training College itself is a bad example of hygiene for the teachers to take with them when they assume their positions of responsibility in the provincial schools.

The construction of village schools by the villagers in many places on simple but sanitary lines was encouraging. An increase of kindergartens is very desirable and will have the effect of bringing the younger children under medical observation. The interval between infancy, when the Welfare Centres are attended, and school age, when medical inspection commences, is perhaps the period during which infectious disease is most likely to develop and may permanently affect adversely the child's future.

Medical Officers of sub-districts still spend far too much time going long distances to examine medico-legal cases and subsequently in the courts to which they are called to give evidence.

A closer coordination of work in villages between District Officers and Medical Officers would undoubtedly lead to more satisfactory results in sanitation of villages, where little real progress can be registered. It is the force of character of the Medical Officer rather than the effect of summons against the villager that succeeds in maintaining a reasonable cleanliness. The tendency of the villager and colonist is retrograde in this respect in so far as the roads within and the open spaces around villages are concerned. Promiscuous defaecation is the custom in Arab villages, and household latrines are the exception. Our experience of public latrines whether in Arab villages or in Jewish colonies is unfortunate. They are no one's responsibility to keep clean, and there are no paid scavengers.

In connection with our commencing campaign against ankylostoma in Jaffa District, we are endeavouring to interest the Arab in the bored hole latrine which we have installed in the courtyards of houses in several villages at cost price, and which we hope to extend to other places in due course.

In towns, public latrines are being established slowly, but not yet in sufficient numbers, with the result that the open spaces are seriously soiled and the fly pest is unabated.

The hospital service for general diseases was adequate in the larger towns except in Haifa where, as stated under "B. FINANCE", additional provision is being made by extension of the Government Hospital, Haifa. The closure of the Hadassah Hospital, Haifa, for general cases at the end of the year will make the situation difficult until that extension is complete, and during the next 6 months the Government Hospital will probably have more demands on its accommodation than it can satisfy. The Jews are much better off than the rest of the population for both hospital beds and for medical aid in colonies, and no material hardship will, therefore, result unless there occurs an epidemic.

The hospital provision for special diseases, tuberculosis, insane, and infectious disease, is very limited. The Government hospitals at Jerusalem and Haifa had a very busy year. The majority of the patients consisted of Government officers, police, prisoners, medico-legal cases, the very poor and infectious or communicable cases of disease. The demands for admission were considerably increased in each category.

The Municipal hospitals in 5 towns continued to carry out their functions under the technical staff provided by the Department of Health, while the local hospital committees assisted in the non-technical services. The system is not satisfactory and should be terminated as opportunity occurs. A divided control of this nature cannot work if Municipal members of committees attempt to make political or party issues of technical appointments of staff made by the Department. The majority of patients are Government entitled, police, prisoners and medico-legal cases, and of the others a proportion are from the villages. The chief responsibility is, therefore, Government and not Municipal.

The C.M.S. hospitals at Jaffa, Nablus and Gaza, the Jerusalem and the East Mission hospital at Hebron, the Edinburgh Mission hospital at Nazareth and the Scottish Mission hospital at Tiberias continued their very valuable medical work and in each place relieved the Government of many of its responsibilities for the provision of hospital accommodation for the people. The English hospital of the Church Mission to Jews at Jerusalem continued its valuable work under Dr. Orr-Ewing, Honorary Consulting Physician to the Government whose valuable advice in consultation on many difficult cases we have to record.

The Ophthalmic Hospital of the Order of St. John, under Dr. J. Strathearn, Warden of the Hospital, and Honorory Ophthalmic Consulting Surgeon to the Government, received and treated the bulk of the more serious opthalmic cases.

The continued cooperation of the Order with the Department of Health, and the assistance given by technical supervision of the six Department's clinics in the districts resulted in a very large proportion of those suffering from trachoma and other affections of the eyes obtaining free treatment.

The school ophthalmic treatment provided by the Department in Government and certain voluntary schools in towns and villages, and in Jewish schools by the Hadassah Medical Organization, was carried out thoroughly. Trachoma continues, however, as one of the scourges of the Arabs of Palestine and there is scarcely a village in Southern Palestine in which 90% of the people have not the disease in its active or passive stage.

The Hadassah Medical Organization continued to maintain the Rothschild Hospital in Jerusalem, a reduced hospital at Haifa, to contribute half of the cost of Tel-Aviv Hospital and to maintain the Safad Hospital for tuberculosis and for a few general cases. The Qupat Cholim, which derives its funds from Workmen's subscriptions to a form of Voluntary Health Insurance, and from a subvention from the Jewish Agency, continued its good work in the new Emek Hospital at Affula and in the convalescent homes of Motza and Carmel. By association with the Hadassah Medical Organization, a very adequate hospital provision is made for the Jews and a complete scheme of clinics with doctor and nurse is established in each colony or in each group of colonies.

The funds of these two Jewish Medical Organizations suffered severe curtailment on account of the reduced grants from the Jewish Agency, and various economies were effected. It may still be necessary for them to effect further economies which should not be impossible, considering the funds already at their disposal, and the hospital, infectious and out-patient provision already made, and to be made, by the Department and by certain voluntary hospitals for all sections of the population.

The Shaare Zedek and Bicur Cholim hospitals assisted in providing for the Jewish community of Jerusalem. During the epidemic of scarlet fever amongst the Jewish community in Jerusalem, the Shaare Zedek provided accommodation for the bulk of the cases on repayment.

Infant Welfare Centres and pre-natal clinics are also adequately provided for Jews by the Hadassah and Voluntary Societies, while in Jerusalem and Tel-Aviv the Lina and Nathan Straus Health Centres continued their functions in several valuable directions.

2. Communicable Disease.

The incidence of infectious or communicable disease has not been unduly high.

Apart from the annual wave of measles, there has to be recorded a sharp epidemic of scarlet fever, restricted to Jews, in Jerusalem, in which 219 cases occurred over a period of 148 days. In the absence of an Infectious Hospital, isolation was difficult, but after allocation had been arranged of an isolated section of the Shaare Zedek Hospital, against payment on a treatment basis, the epidemic quickly subsided.

Several localised epidemics of enteric fever occurred in Arab villages, from one of which in Jerusalem District, 25 cases were treated in hospital. Anti-typhoid inoculation and isolation of cases were effective in limiting the disease to the villages concerned.

The incidence of Ankylostomiasis in Jaffa District, where the disease was known to be endemic, is a matter of some concern to the Department. The results of a short survey of the villages in the district demonstrated an infection of 28.5% of the children. The individual infestation was not worked out, but it was evident that in certain instances it was heavy. Preliminary measures were taken to invoke the aid of the medical delegation of the Rockefeller Foundation now working on ankylostomiasis and bilharzia in Egypt, and promise was given of field assistance by Mr. Carter and of a survey by Dr. Scott in the spring of 1932. It will then be possible to arrive at a conclusion as to what measures are necessary to prevent the disease becoming of economic importance in connection with the labour employed in the extensive orange groves in this area.

Bilharzia in the same area and in certain similarly situated areas on the coastal plain is not yet serious, but requires watching in view of the irrigation methods that are developing.

A perliminary survey of tuberculosis in Palestine was commenced in the Northern District by the S.M.O. in charge of Endemic Diseases, and very valuable information obtained as to incidence of the disease and as to its manifestations.

Results of the survey were obtained from the majority of the towns and villages of the North, but owing to the loss by economy of one S.M.O., the work had to be suspended.

It remains to complete the preliminary survey in the Jerusalem and the Southern Districts and to carry out investigations of the milk supplies to establish the relative importance of the human and bovine sources of infection.

It is quite clear from the results of incidence already obtained that tuberculosis is a large problem to be dealt with in Palestine, and will require considerable outlay on the part of Government if the disease is to be dealt with on anything like correct lines.

The incidence of enteric fever and the mortality were much the same as in 1930— 905 compared with 875. Haifa and district was the area of highest incidence with 332 cases. The disease is not likely to decline in this town until a safe water supply is introduced into the town. An examination of 20 of the chief well supplies in the town revealed contamination in 75 %. They are, moreover, unpleasantly saline. Some of these supplies are distributed to considerable areas of the town, and are subject to license, although the lack of alternative makes it impossible to condemn their use.

In Jerusalem district the incidence was 271. In the town of Jerusalem the conditions of water supply, although the quantity is entirely inadequate, do not render the population so liable to water borne infection except when in time of extreme shortage in the autumn, water for household purposes is obtained from rock cisterns, known to be contaminated, or from other sources collected from unclean catchment areas, is utilized for household purposes. This situation has arisen during the past two years when the greatest number of cases of enteric were recorded at that season.

The chief incidence of typhoid and paratyphoid disease continues to occur in the Jewish population. If the curve of incidence for the past years provides any indication for the future, we might expect another bad year in 1932.

As a Senior Medical Officer states, one can only attribute the comparatively low incidence of these diseases to the preventive inoculation of immigrants which has been proceeding over a course of years. If sanitary conditions remain as they are, the protection afforded by these initial inoculations will have broken down and typhoid epidemics will be the order of the day. Although in certain areas inoculation campaigns have been vigorously prosecuted on the threat of an epidemic, the majority of the Jews must now have lost any protective immunity conferred by those inoculations.

Amongst the Arab rural population, which is undoubtedly less susceptible, there have been several sharp localized outbreaks, but the incidence on the whole is confined to the towns where unsatisfactory water supplies are more exposed to infection from human excretal discharges than the more primitive supplies of villages.

Dysentery cases showed a distinct decline, 297 compared to 514 in 1930. Measles was more prevalent and the number of cases notified, 7783, exceeded those of 1930 by 3765. The case mortality was 9.30% compared with 8.36.

There was again no case of smallpox, cholera, or plague and of other infectious diseases Palestine was remarkably free.

The year was a favourable one as regards malaria. The general control was effective and while the incidence remained higher in certain rural localities in the Northern District, the disease in other parts was less prevalent. The spleen index of school children in towns was 1.41 compared with 1.55 in 1930. The principal achievement of the year in regard to the larger antimalarial projects was the completion near Haifa of the difficult Kishon Scheme by the Government, and of the Fuara Scheme by the Palestine Economic Corporation on plans approved by the Department. Both these comparatively large schemes can now be pronounced as effective in having cleared of malaria the rapidly developing North East Area of the vicinity of Haifa. Various smaller projects carried out by the Department, including one at El Hamme hot-springs and another at Baisan, have proved of great value.

The loss of the Malarial Engineer of the Department will react unfavourably in the execution of those many minor drainage schemes which have been a feature of the antimalarial work in Palestine.

The measures of control of the syphilis in Hebron district, which has for long been a problem, was carried on with indifferent success. The whole time services of an expert endemic officer will be necessary before the campaign can be really effective.

D. INDUSTRIAL CONDITIONS.

The control of Trades and Industries was effective, and the general improvement in trades dealing with food and beverages was again marked. A great deal of the time of the Medical Officers and Sub-inspectors were, however, taken up in inspection and in laying down conditions for trades such as that of the petroleum spirit and of other products not directly concerned with Public Health but on the Schedule under the Trades and Industries Ordinance administered by the Department.

The sanitary conditions in public buildings, as well as in private houses, was a special concern of the Department under the terms of the Town Planning Ordinance, and the reaction of the public to the conditions as to house drainage and sanitary installations was remarkable.

The work accomplished in this respect by the British Sanitary Surveyors of Municipalities at Jerusalem, Jaffa and Haifa, was again of the greatest value. As an educational factor in Public Health, their influence on the householder, or prospective builder has been such that there has of recent years, in these three towns, been a complete change in the constructional methods, in means of ventilation, and in sanitary installations and drainage. The tenants, whether Arab or Jew, demand a high grade installation.

A considerable number of places of public entertainment, such as theatres and cinemas were newly erected or reconstructed in the larger towns on good lines.

Several cinema halls were built to the best European design with ventilation and sanitation as prescribed by the Department under the Model Byelaws of the Town Planning Ordinance.

The smaller towns are showing a progressive spirit, more especially in the direction of water supply, of roads, and in the construction of markets. Private building advanced rapidly both in towns and villages in spite of the financial depression, and the erection of shops continued unabated and out of all proportion to requirements.

The excessive hotel construction during the last few years has resulted in the closing down of several large establishments, due in part to the poor tourist seasons.

The fellaheen, in spite of miserable crops of grain, do not appear to have suffered in health. Their requirements in food are very small and, if the natural increase of population was not so remarkably high, they could exist on what they produce.

There was a marked tendency during the year for labourers to migrate to the towns where labour was likely to be available, with the result that Haifa's increase in population has been remarkable, and housing for the poor is an acute problem.

The Jews continue to appear prosperous and well fed, but the colonists have very little money for sanitary developments. It was a matter considerable difficulty in certain new colonies to prevail upon the promoters to establish our minimum requirements in sanitation.

E. MUNICIPAL SANITARY SERVICES.

The Sanitary Services in the three largest towns were very satisfactorily conducted, frequently under difficult conditions. One of the difficulties of general cleanliness is the promiscuous defaecation and urination practised by the Arab population. The small number of public latrines may be a contributory but not the sole reason. The habits of centuries can be overcome only gradually.

The lack of adequate water supply in small towns, and the absence of drainage in most, militates against an efficient Municipal Service. The general improvement and tarring of roads has, on the other hand, materially assisted in the maintenance of cleanliness.

The refuse collection from houses is in general very good, the final disposal, except in Jerusalem and Haifa, is not so satisfactory. In Tel-Aviv it is very bad.

House drainage again improved, and minor drainage schemes, or improvement of existing partial systems, were carried out with great success by the Sanitary Surveyors and Municipal Engineers in the three chief towns.

Small drainage projects in provincial towns were carried out under the supervision of the Department, but, in general, there is a greater demand for water supplies than there is for the drains which are so necessary an accompaniment to an increased use of water.

There was no development of any large project of water supply or drainage, except that already recorded of a section of sewerage in Jerusalem, yet in the case of Jerusalem and of Haifa very considerable progress has been made towards the completion of the preliminary considerations and estimates for public water supplies. The water situation in the former town became so serious last autumn that an additional temporary source was tapped, but failed to relieve the situation materially. A committee consisting of the District Commissioner, Jerusalem, the Director of Department of Health, Director of Public Works, and the Senior Medical Officer, Jerusalem, prepared a scheme for water supply capable of development when the existing concession was terminated.

In Haifa, the Kabri scheme of supply was still further advanced and the riparian rights of property owners examined.

The construction of the new slaughter-house and Meldrum destructor for Jerusalem was commenced.

The antimalaria work in Municipal areas under the control of the Department of Health assisted by the Municipalities was efficiently carried out in all towns throughout Palestine. As a result, there was almost a complete absence of malarial infection, and a comparative freedom from vexation by the culex mosquito. A small and localised outbreak of malaria, the first for eight years, occurred in the old city of Jerusalem and signified the danger of any relaxation of control by anti-mosquito gangs. The wider extension of the towns rendered it necessary to obtain more assistance from Municipalities for the provision of "oilers".

II. VITAL STATISTICS AND EPIDEMIC DISEASE.

1. Vital Statistics.

(a) Population.

The second census of Palestine was taken on 18th November, 1931, under the Census Ordinance, 1931. The Census Report has not yet been published, but provisional totals subject to correction were published in December giving a population of 1,035,154 of which 526,078 were males and 509,076 were females. Included in these figures are Bedouins residing in tracts in Jerusalem and Southern Districts whose enumeration was contemporaneous but not synchronous with the census.

Of this total the rural population amounted to 387,525 or 37.4 % of the whole.

The classification by religions gave the following results:—

Moslems	Jews	Christians	Others	Total
759,952	175,006	90,607	9,589	1,035,154

The estimated mid-year settled population based on the census of 1922, due allowance being made for natural increase and for migration, yields figures as follows.—

Moslems	Jews	Christians	Others	Total
608,105	169,576	84,930	9,554	872,165,

and to this falls to be added as in past years the nomadic population which the Census of 1922 recorded as 103,331. This addition brings the mid-year estimate to 975,496.

Various other factors must be taken into account before comparing the census figure with that obtained by estimation, thus:-

Estimate of mid-year population	975,496
Natural Increase (July to November)	8,155
Excess of immigration over emigration (July to November)	1,424
Unregistered immigrants registered under Immigration Ordinance, 1931	2,468
Members of H.M. Forces (Census figures)	9,001
Passengers and crew on board vessels in Ports (Census figures)	98
	999,149

A comparison of the figures of classification by religions in light of the above indicates that the main discrepancy occurs in the case of Moslems, the provisional census figure being 38,444 in excess of the estimated figure. This would appear to indicate that in the Census of 1922, the number of the settled Moslem population recorded (486,177) was unduly low, but it has been on this figure that the departmental estimates of population and of vital occurences have been based during the past ten years.

In the case of Jews, the provisional census figure is 56 in excess of departmental estimates, and in the case of Christians the census population is 2351 less than the Department's estimates. This difference corresponds closely with reduction in strength of H.M. Forces.

(b) Births, Deaths and Infant Mortality During 1931.

Since the detailed census report has not yet been published, the calculations of the various rates given below have been based on the mid-year estimation of the population and not on the provisional census figures.

The totals of births and deaths as shown below are calculated upon the settled population only, that is 872,165.

Year	Births	Deaths	Deaths under one year of age
1927	39,193	21,806	7,857
1928	42,895	23,054	7,993
1929	41,742	21,632	7,784
1930	44,587	19,513	6,879
1931	46,011	21,149	7,826

The ratio per thousand of the population for 5 years is as follows:—

Year	Estimated mid-year Population	Death Rates	Birth Rates	Infant Mortality Rates
1927	778,369	28.01	50.35	200.50
1928	794,516	29.01	53.98	186.34
1929	816,064	26.50	51.15	186.47
1930	843,132	23.14	52.86	154.28
1931	872,165	24.24	52.75	170.10

The estimated increase of population during the past five years has been:—

Year	Natural Increase	Rate per 1000 Population	Difference between Immigration and Emigration	Increase or Decrease per 1000 of Population	Total rate of Increase per 1000 of Population
1927	17,387	22.3	− 3826	− 5.0	17.4
1928	19,841	24.9	− 0036	− 0.04	24.9
1929	20,110	24.6	+ 3731	+ 4.6	29.2
1930	25,074	29.7	+ 0326	+ 0.38	30.12
1931	24,862	28.5	+ 0270	+ 0.31	28.81

The natural increase of the religious divisions expressed as a ratio per 1000 is:—

Year	Christians	Moslems	Jews	Other Religions	Total
1927	18.8	23.0	21.6	22.1	22.3
1928	21.4	25.9	23.3	24.6	24.9
1929	19.9	26.0	22.2	16.9	24.6
1930	22.7	32.4	23.8	25.7	29.7
1931	23.3	30.6	22.9	35.1	28.5

The Births, Deaths and Infant Mortality rates of these sub-divisions of the population were as follows:—

		Christians	Moslems	Jews	Other Religions	Whole Country
1927	Births	38.9	56.1	35.1	50.3	50.3
	Deaths	20.1	37.0	13.4	28.1	28.0
	Infant Mortality	158.0	172.5	108.1	170.9	163.0
1928	Births	40.4	60.9	35.4	45.6	53.9
	Deaths	18.9	35.1	12.1	21.0	29.0
	Infant Mortality	157.9	203.5	95.8	121.2	186.3
1929	Births	37.84	57.74	34.06	43.67	51.15
	Deaths	17.93	31.67	11.79	26.69	26.50
	Infant Mortality	155.79	204.91	89.78	166.66	186.47
1930	Births	38.98	60.31	33.44	44.98	52.88
	Deaths	16.22	27.90	9.60	19.18	23.14
	Infant Mortality	134.43	169.55	69.00	118.07	154.28
1931	Births	38.97	60.29	32.66	51.70	52.75
	Deaths	15.66	29.62	9.71	16.53	24.24
	Infant Mortality	133.53	187.52	81.60	113.36	170.10

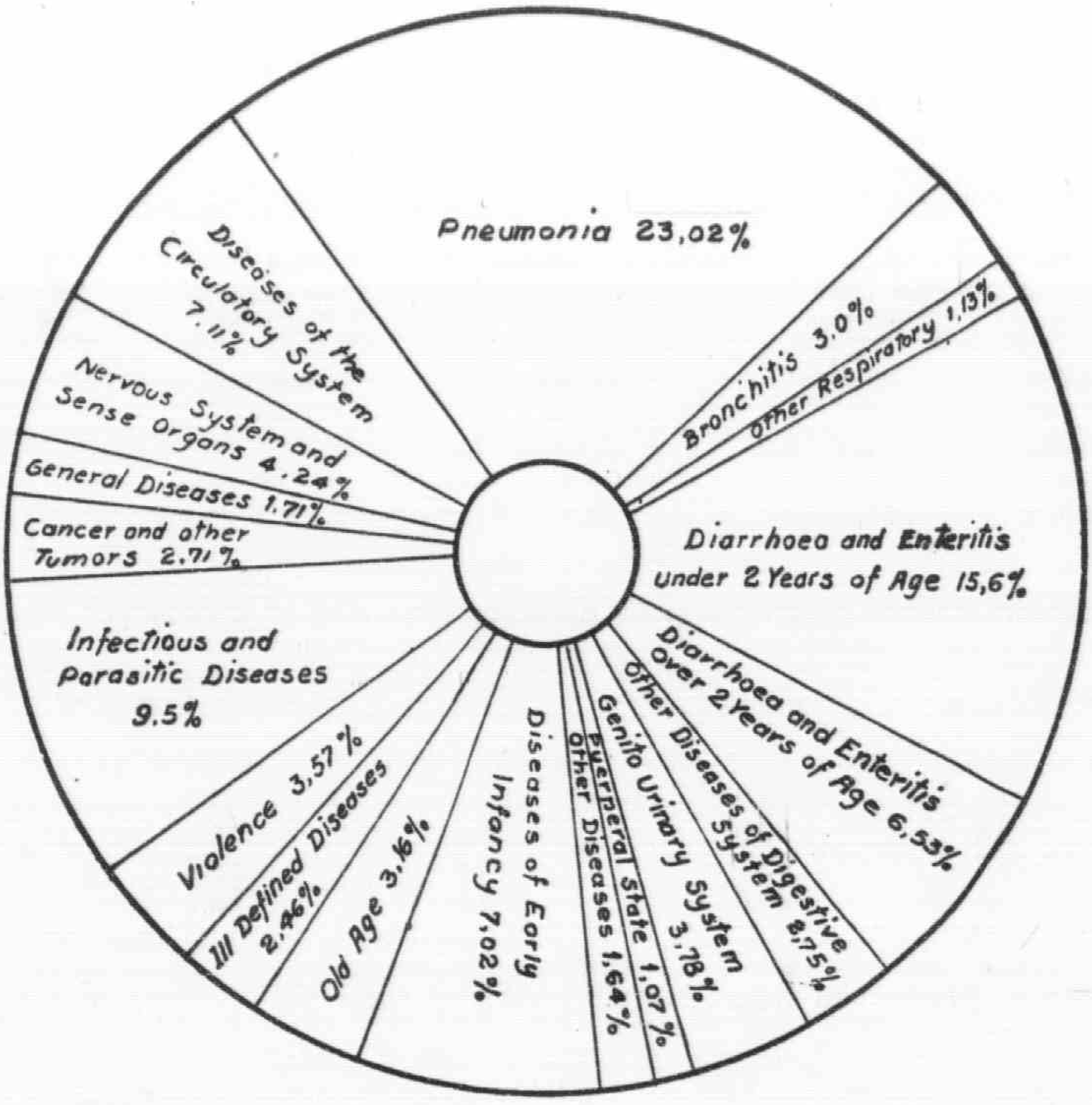
(c) Classification of Causes of Death.

The deaths notified in the principal towns have been classified in accordance with the international nomenclature of causes of death, and the classification of the 7088 deaths recorded is indicated in diagrammatic form.

The proportion of cases and deaths from epidemic, endemic, and infectious disease notified to the Department from the whole country is also graphically represented. Cases of, and deaths from malaria have been excluded since such occur only in certain areas.

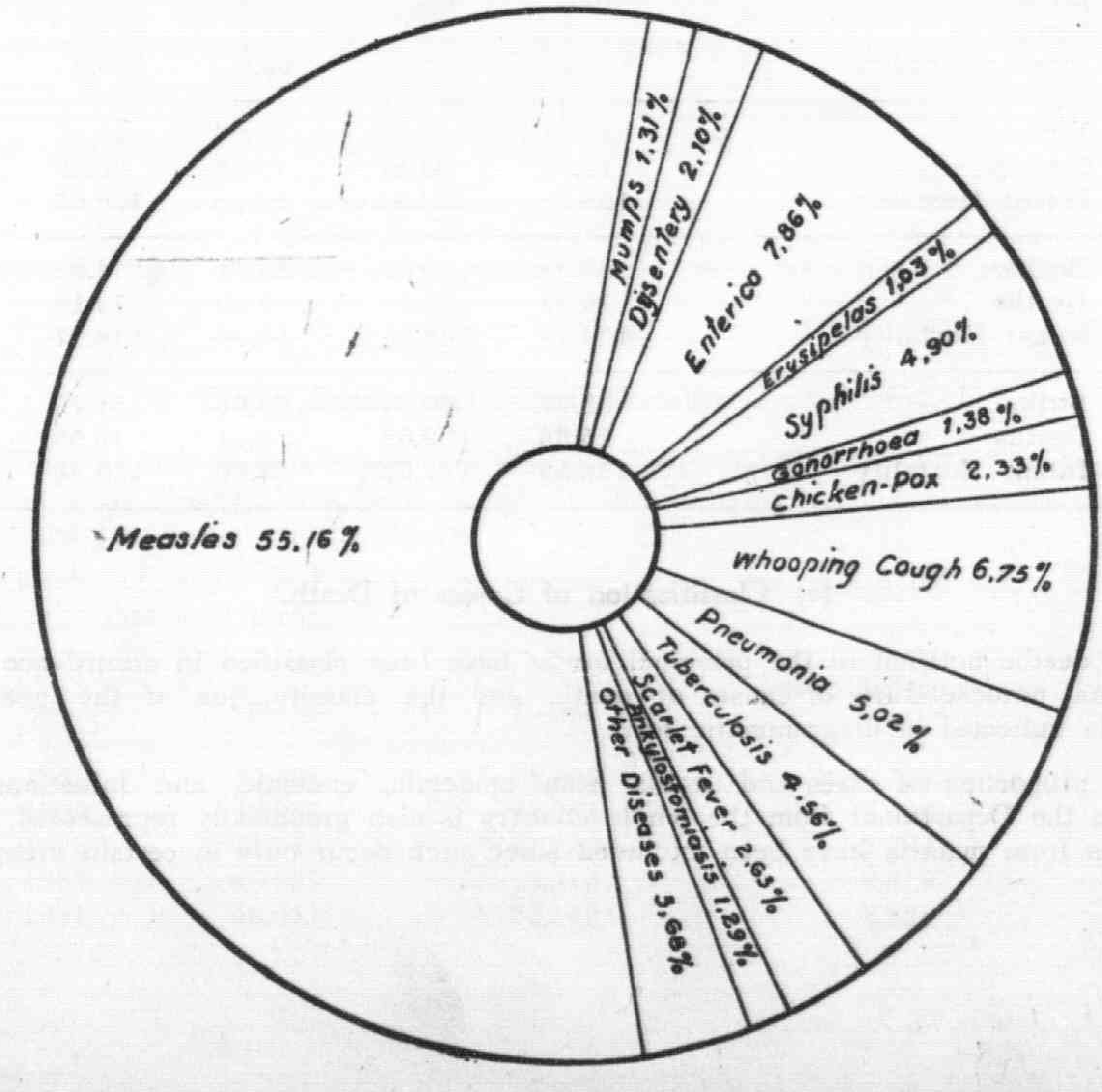
PROPORTION OF DEATHS FROM EPIDEMIC, ENDEMIC, INFECTIOUS, SYSTEMATIC AND OTHER DISEASES SHOWN AS PERCENTAGE OF TOTAL DEATHS IN ALL TOWNS OF PALESTINE, 1931.

TOTAL DEATHS=7088.



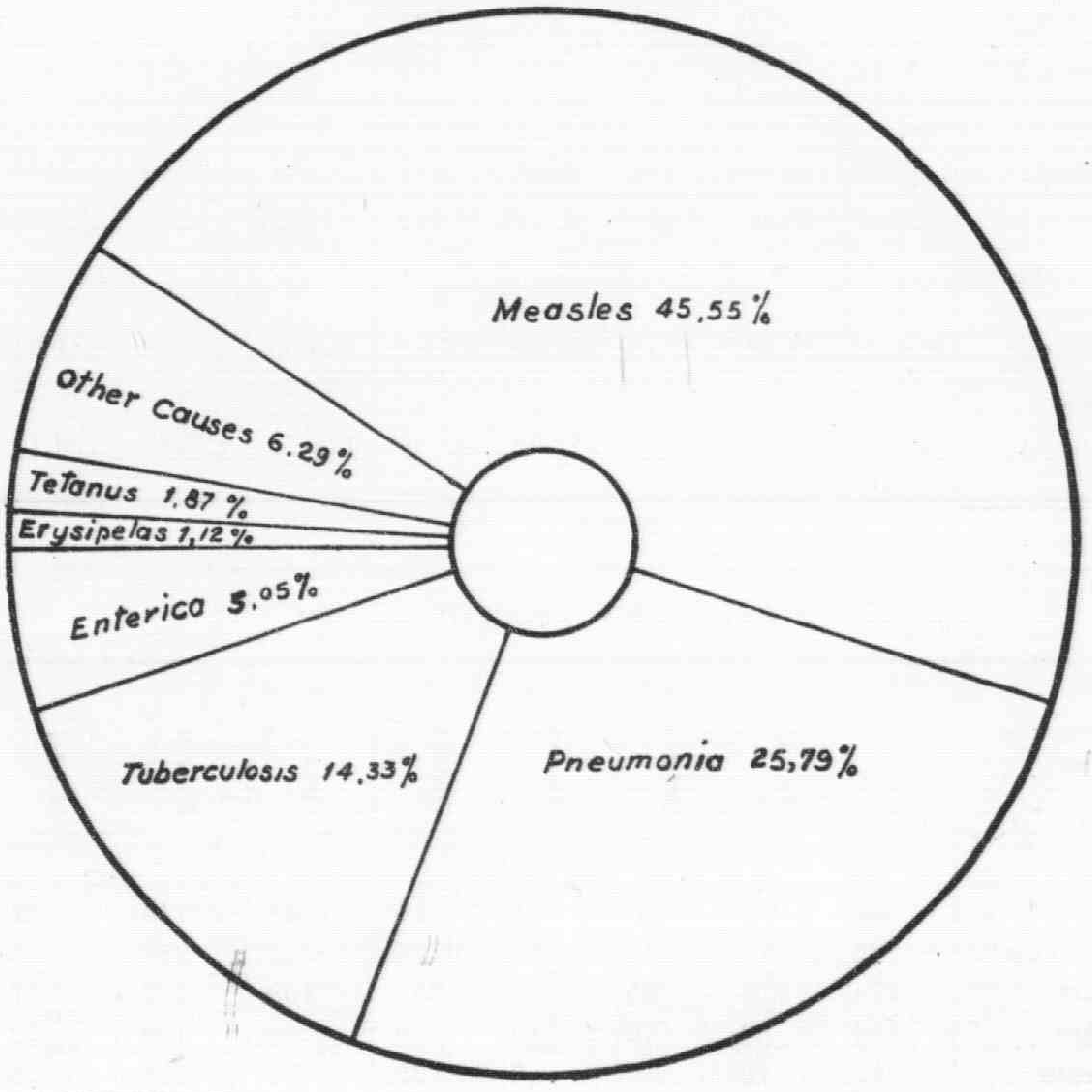
PROPORTION IN PERCENTAGES OF CASES OF EPIDEMIC, ENDEMIC AND INFECTIOUS DISEASES (MALARIA EXCEPTED) NOTIFIED IN PALESTINE IN 1931.

TOTAL INCIDENCE=14,110.



PROPORTION IN PERCENTAGES OF DEATHS FROM EPIDEMIC. ENDEMIC AND INFECTIOUS DISEASES (MALARIA EXCEPTED) NOTIFIED IN PALESTINE, 1931.

TOTAL DEATHS=1605.



BIRTHS AND DEATHS — 1931.

Town, Village or District	Jerusalem	District	Ramallah	District	Bethlehem	District	Hebron	District	Beersheba
DEATHS									
Under 1 month	98	89	8	71	19	12	49	65	5
1 month to 1 year	255	283	10	232	65	64	226	537	16
1 to 2 years	129	185	3	154	15	50	108	273	15
2 to 5 years	71	156	7	116	11	14	42	293	4
5 to 10 years	43	33	1	29	6	1	5	55	—
10 to 20 years	47	20	1	10	11	4	5	36	2
20 to 50 years	246	80	5	84	18	8	42	120	3
Over 50 years	448	119	10	120	46	37	77	161	5
Unknown	—	—	—	—	1	—	—	—	—
Total Deaths 1931	1337	965	45	816	192	190	554	1540	50
Total Deaths 1930	1281	787	50	721	179	199	471	872	70
BIRTHS									
Total Births 1931	3385	2196	167	1736	272	481	1144	2445	153
Total Births 1930	3201	2181	143	1779	269	513	1275	2505	168
INFANT MORTALITY									
Rate per 1000 Births 1931	104.28	169.39	107.78	174.53	308.82	158.00	240.38	246.21	137.25
Rate per 1000 Births 1930	96.84	137.09	146.85	145.58	349.44	173.48	173.33	134.13	178.57

BIRTHS AND DEATHS — 1931.

Town, Village or District	Jaffa	District	Tel-Aviv	Ramleh	District	Gaza	District	Majdal	District
DEATHS									
Under 1 month	94	56	28	21	74	48	114	32	93
1 month to 1 year	285	175	71	62	276	253	296	94	348
1 to 2 years	174	115	25	32	259	158	177	37	198
2 to 5 years	104	88	10	19	219	80	126	12	84
5 to 10 years	33	16	7	6	32	26	18	3	17
10 to 20 years	43	14	8	6	20	15	10	3	15
20 to 50 years	180	79	52	25	74	59	93	12	81
Over 50 years	184	114	191	44	137	81	95	18	85
Unknown	1	—	—	—	—	—	—	—	—
Total Deaths 1931	1098	657	392	215	1091	720	929	211	921
Total Deaths 1930	1078	606	371	248	1040	735	806	188	936
BIRTHS.									
Total Births 1931	2037	2051	1365	516	2492	1316	1728	409	2100
Total Births 1930	2081	1904	1370	569	2619	1179	1796	377	2090
INFANT MORTALITY									
Rate per 1000 Births 1931	186.05	112.62	72.52	160.85	140.45	228.72	237.26	308.07	210.00
Rate per 1000 Births 1930	155.21	112.39	59.12	161.68	123.33	254.45	198.77	241.38	207.65

BIRTHS AND DEATHS — 1931.

Town, Village or District	Haifa	District	Acre	District	Nazareth	District
DEATHS						
Under 1 month	73	96	12	33	12	43
1 month to 1 year	162	219	32	167	69	122
1 to 2 years	107	119	22	130	32	77
2 to 5 years	89	103	16	59	25	72
5 to 10 years	19	21	5	25	10	18
10 to 20 years	22	22	3	21	14	14
20 to 50 years	119	108	48	102	51	49
Over 50 years	149	121	50	115	56	56
Unknown	—	1	—	5	—	—
Total Deaths 1931	740	810	188	657	269	451
Total Deaths 1930	695	825	166	722	275	465
BIRTHS						
Total Births 1931	2028	1953	304	1818	438	1209
Total Births 1930	1963	1558	324	1645	451	961
INFANT MORTALITY						
Rate per 1000 Births 1931	115.87	161.29	144.73	110.01	184.93	136.47
Rate per 1000 Births 1930	117.16	168.80	135.80	118.54	190.68	164.41

BIRTHS AND DEATHS — 1931.

Town, Village or District	Nablus	District	Tulkarem	District	Tiberias	District	Safad	District	Jenin	District
DEATHS						*				
Under 1 month	33	113	6	85	7	59	17	75	13	135
1 month to 1 year	100	345	21	354	36	168	54	285	18	338
1 to 2 years	150	346	16	162	21	106	40	138	23	172
2 to 5 years	67	352	6	79	8	78	22	90	5	98
5 to 10 years	22	61	—	27	4	23	8	23	2	39
10 to 20 years	24	26	—	21	2	12	10	26	1	38
20 to 50 years	78	151	9	104	26	122	27	105	6	134
Over 50 years	90	174	9	105	35	65	49	89	12	109
Unknown	—	2	—	—	—	—	—	—	—	—
Total Deaths 1931	564	1570	67	937	139	633	227	831	80	1063
Total Deaths 1930	450	1271	84	814	169	349	192	848	74	1236
BIRTHS										
Total Births 1931	882	2905	240	2235	379	1153	458	1741	143	2132
Total Births 1930	929	2757	271	2128	446	673	417	1517	124	1944
INFANT MORTALITY										
Rate per 1000 Births 1931	150.79	157.65	112.50	196.42	113.45	196.87	155.02	206.77	216.77	221.85
Rate per 1000 Births 1930	103.33	179.18	166.05	176.69	123.31	176.52	107.91	189.18	314.52	201.64

* **Baisan and District shown in the Report for 1930 are now included in Tiberias District.**

SUMMARY OF BIRTHS AND DEATHS — 1931.

	Totals for Towns	Totals for Districts Excluding Beersheba	Religions	Christians	Moslems	Jews	Others	Totals	Percentage
			Populations	84,930	608,105	169,576	9,554	872,165	
Deaths.			**Deaths**						
Under 1 month	575	1213	Under 1 month	108	1547	122	11	1788	8.45
1 month to 1 year	1829	4209	1 month to 1 year	334	5329	330	45	6038	28.55
1 to 2 years	1107	2661	1 to 2 years	133	3479	130	26	3768	17.81
2 to 5 years	598	2027	2 to 5 years	84	2455	71	15	2625	12.41
5 to 10 years	200	438	5 to 10 years	36	564	35	3	638	3.01
10 to 20 years	217	309	10 to 20 years	42	438	43	3	526	2.49
20 to 50 years	1006	1494	20 to 50 years	195	2018	260	27	2500	11.82
Over 50 years	1554	1702	Over 50 years	396	2176	656	28	3256	15 39
Unknown	2	8	Unknown	2	8	—	—	10	.04
Total Deaths 1931	7088	14061	Total Deaths	1330	18014	1647	158	21149	—
Total Deaths 1930	6892	12621	Deaths per 1000	15.66	29.62	9.71	16.53	24.24	100.00
Births.			**Births**						
Total Births 1931	15636	30375	Total Births	3310	36668	5539	494	46011	—
Total Births 1930	15714	28873	Births per 1000	38.97	60.29	32.66	51.70	52.75	—
Infant Mortality.			**Infant mortality.**						
Rate per 1000 births 1931	153.81	178.48	Total deaths under 1 year	442	6876	452	56	7826	—
Rate per 1000 births 1930	142.92	160.46	Rate per 1000 births.	133.53	187.52	81.60	113.36	170.10	

2. Epidemic Service.

The epidemic post at Hebron which had been at the disposal of the Army since September, 1929, was handed back to the Department in September.

3. Training of Personnel.

The usual training courses in sanitation for Departmental personnel were held particulars of which are given on page 3 of this report.

4. Disinfection.

The various disinfecting machines in possession of the Department have been maintained in serviceable condition.

DISINFECTING SERVICE, 1931.

	* Method "A"	* Method "B"	No of articles or bundles disinfected
Jerusalem	83	593	1357
Ramallah	—	56	2023
Bethlehem	—	51	3080
Hebron	31	34	5568
Beersheba	—	50	8510
Jaffa	5	285	15936
Tel-Aviv	—	257	1216
Ramleh	—	19	423
Gaza	—	251	497
Majdal	—	18	1918
Haifa	34	830	101757
Acre	—	175	1635
Nazareth	12	609	2438
Kantara	—	—	—
Nablus	—	1139	6696
Tulkarem	2	29	4557
Tiberias	88	40	3264
Safad	1	176	5260
Jenin	—	125	478
TOTALS	256	4737	168013

5. Infectious and Communicable Disease.

14,917 cases and 1608 deaths were notified compared with 10,877 and 1131 deaths in 1930. The marked increase is due in large part to measles of which there was a severe outbreak in Hebron, and to scarlet fever which occurred early in the year in epidemic form in Jerusalem.

The principal causes of death amongst these diseases were measles 731, pneumonia 414, and tuberculosis 230.

(a) **Acute Poliomyelitis.** There were 3 cases with 2 deaths. The towns of Jerusalem, Jaffa and Tel-Aviv each reported one case.

(b) **Cerebro-Spinal Meningitis.** 4 cases with 3 deaths were notified.

(c) **Encephalitis Lethargica.** No cases were reported.

(d) **Pneumonia.** 709 cases occurred with 414 deaths. Notification is incomplete.

(e) **Tuberculosis.** A preliminary survey of the incidence and distribution of this disease was commenced. The survey covered the population of the Northern District but reduction of staff has necessitated a temporary suspension of the work.

(f) **Measles.** The marked rise in incidence of this disease which was reported as commencing in December, 1930, reached its peak in January of 1931 with 1165 cases and 163 deaths. The curve gradually fell until in the last quarter of the year it rose again until in December there were 1968 cases with 207 deaths making a total for the year of 7783 cases with a case mortality rate of 9.3%.

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* Disinfection of house of patient (and neighbouring houses where necessary).

Method "A"=For diseases originating in vermin.

Method "B"=For other diseases.

The control of an epidemic of this magnitude presents an almost insoluble problem. In Majdal, an epidemic post was established for the treatment of complicated cases whilst in various other centres nursing staff, detached from Government Infant Welfare Centres, were posted with a view to assisting mothers in the treatment of their children. There is no doubt that, but for the assistance so given, the mortality would have been considerable higher.

(g) **Scarlet Fever.** A considerable increase in the incidence of this disease is to be recorded, there having been notified 372 cases as compared with 39 in the previous year. There were only 4 deaths. Jerusalem town was responsible for 250 cases whilst Tel-Aviv provided 68.

The epidemic in Jerusalem may be said to have commenced with the notification of one case in the end of April. There was no marked exacerbation until the last week in June during which the number of cases notified was 11. The curve then rose rapidly to reach its peak in the 3rd week of July, fell rapidly and straightened out in October, thus exemplifying a normal epidemic curve.

Investigation into the source of the disease did not lead to any conclusive results but certain factors suggested that the infection at its start was milk borne. Investigation at the suspected dairy yielded no information but, on enquiring at the sources of supply, it was ascertained that there had been one or two cases of scarlet fever in a colony in the plain of Jezreel which supplies milk to Jerusalem.

As several months had elapsed since these cases had occurred in the colony, bacteriological examination failed to assist, but it is at least probable that the source of infection was Kfar Yehezkiel. Of the first 62 cases notified, 24 obtained their milk from the dairy in question.

The age and sex incidence was as follows: —

Age of cases:-

Under 1 year	1
1 to 2 years	40
2 to 5 years	100
5 to 10 years	64
10 to 15 years	16
Above 15 years	5
Total	226

Cases notifed during the epidemic — May — September.

Sex of cases:-

Males	118
Females	108
Total	226

Even a minor epidemic of this nature indicates how precarious is the situation in Jerusalem in regard to the isolation of cases of infectious disease. In this case it was necessary to accommodate 125 patients in a voluntary hospital.

It has in the past been the practice to rely on temporary expedients for the isolation of all such cases of infectious disease as could not be isolated at home and it has been fortunate that previous epidemics of infectious disease have been of such limited dimensions as to make this possible. This of course excludes cases of the enterica group which are dealt with in the general wards of practically all hospitals.

The number of beds at present available for infectious diseases is eleven and this for a population of over 90,000. It is, therefore, imperative to make provision for the proper quota of beds for isolation purposes.

(h) **Typhoid Fever.** This disease continues to show a slight increase — 905 cases as compared with 875 in the previous year. The case mortality rate was 8.4%

The months of highest incidence were from June to October, and the towns of Jerusalem and Haifa returned 36.6% of the total cases.

(i) **Paratyphoid Fevers** show little variation but the downward tendency continues. Jaffa and Tel-Aviv areas are again responsible for over 50% of the total cases notified.

(j) **Dysenteries.** The steady decline observed during the previous 5 years was maintained, 297 cases with 12 deaths being notified as compared with 518 and 7 deaths in 1930. In this group of diseases Tel-Aviv is responsible for over 42% of cases. Laboratory results indicate that of the total, 20.9% were bacillary in origin.

(k) **Undulant Fever.** 16 cases were notified. There were no deaths.

(l) **Anthrax.** There were 6 cases with 2 deaths.

(m) **Tetanus.** 46 cases occurred of which 30 terminated fatally.

(n) **Puerperal Fever.** 40 cases with 21 deaths were recorded. Here, notification is again incomplete.

A study of the puerperal fever death rate is not without interest as indicative of the risks associated with child birth and of the standard of the practice of midwifery.

In the case of Jerusalem, the rate for the whole district in which 11,998 births were registered is 1.25 per 1000 births. Of the cases notified, however, 13 (6 deaths) were in Jerusalem town and 2 (1 death) in Bethlehem. This gives a rate in the case of Jerusalem of 3.81, whilst in the town of Bethlehem it is 6.87, a tragic figure especially when consideration is given to the probability that many cases escape notification. Evidence that such is the case is available from the fact that the figure of 1.25 for the whole area is less than the corresponding figure for England.

(o) **Leprosy.** 7 cases with 2 death were notified. Of this number 4 were hospitalized at the Leper Hospital, the remainder attending out-patient clinics.

(p) **Typhus and Relapsing Fever.** These continue to occur sporadically. There were 51 cases of the former and 16 of the latter. There were no deaths.

(q) **Schistosomiasis.** 10 cases were notified.

(r) **Ankylostomiasis.** A survey was commenced of the prevalence of ankylostomiasis in the orange groves and irrigated areas in the neighbourhood of Jaffa. Preliminary results compared with investigations made some years ago indicate that the incidence of infection appears to be increasing and to be associated with the extension of citrus cultivation. In some villages 70 percent of persons examined have been found infected.

A programme of work is being arranged to cope with this endemic disease as its increase in prevalence and intensity of infection will be cumulative and, if not dealt with now, will in course of time have most detrimental effects upon the economic life of the community.

6. Vaccinations — 1931.

	Results of Observation	Towns	Villages	Persons entering Palestine		Totals
				Haifa Port	Jaffa Port	
Primary Vaccinations	Successful	12721	30787	—	11	43519
	Unsuccessful	631	1745	—	—	2376
	Not observed	1195	2051	—	2	3248
Re-Vaccinations	Successful	794	954	144	663	2555
	Unsuccessful	800	306	332	1300	2738
	Not observed	1138	253	437	164	1992
Totals.		17279	36096	913	2140	56428

In so far as primary vaccination is concerned, the population is well protected against smallpox.

During the year there were in towns 18,636 births, and 14,647 of these children were vaccinated, whilst in the districts there were 30,375 births and 34,583 primary vaccinations.

CASE AND DEATH INCIDENCE OF INFECTIOUS I

	Jerusalem Town		Jerusalem District		Ramallah and District		Bethlehem and District		Hebron and District		Beersheba and District		Jaffa Town		Jaffa District		Tel-Aviv		Ramleh and District		Gaza and District	
	Cases	Deaths	Cases	Deaths	Cases	Deaths	Cases	Deaths	Cases	Deaths	Cases	Deaths	Cases	Deaths	Cases	Deaths	Cases	Deaths	Cases	Deaths	Cases	Deaths
Acute Poliomyelitis	1	1	—	—	—	—	—	—	—	—	—	—	1	1	—	—	1	—	—	—	—	—
Anthrax	—	—	—	—	—	—	—	—	—	—	—	—	2	—	—	—	—	—	—	—	—	—
Cerebro-Spinal Meningitis	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Chicken Pox	15	1	—	—	6	—	—	—	4	—	4	—	16	—	18	—	41	—	20	—	6	—
Diphtheria	18	3	—	—	3	—	—	—	—	—	—	—	6	3	11	1	18	—	1	—	—	—
Dysentery	22	1	3	1	2	—	1	1	—	—	1	—	16	1	52	1	72	3	4	—	—	—
Erysipelas	34	3	2	1	5	—	2	1	—	—	1	—	18	3	6	1	14	1	—	—	4	
German Measles	—	—	—	—	1	—	—	—	—	—	—	—	—	—	1	—	2	—	—	—	—	—
Hydrophobia	1	1	—	—	—	—	1	1	—	—	—	—	—	—	1	—	—	—	—	—	—	—
Influenza	45	1	6	—	9	1	2	—	—	—	—	—	1	1	3	1	10	1	2	—	—	—
Measles	213	6	257	28	285	21	24	4	2229	182	6	1	25	2	243	41	187	2	296	35	187	1
Mumps	41	—	—	—	1	—	1	—	—	—	—	—	2	—	23	—	6	—	—	—	1	—
Para-typhoid Fever	33	1	3	—	—	—	2	—	—	—	—	—	16	—	47	2	81	1	—	—	2	—
Pneumonia	151	115	22	9	15	3	51	36	—	—	9	1	84	81	14	14	29	29	1	—	52	1
Puerperal Fever	9	4	4	2	—	—	2	2	—	—	—	—	9	6	—	—	—	—	—	—	4	
Relapsing Fever	8	—	—	—	—	—	—	—	1	—	1	—	2	—	—	—	—	—	—	—	—	—
Scarlet Fever	250	4	5	—	—	—	—	—	—	—	—	—	8	—	24	—	68	—	—	—	—	—
Schistosomiasis	2	—	—	—	—	—	—	—	—	—	1	—	2	—	1	—	1	—	—	—	—	—
Typhoid Fever	146	19	58	5	9	—	12	2	2	—	6	—	75	12	71	3	63	1	1	—	18	
Typhus	1	—	—	—	—	—	—	—	—	—	—	—	2	—	2	—	—	—	—	—	—	—
Undulant Fever	2	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Whooping Cough	132	3	3	—	39	1	2	—	—	—	9	—	33	3	39	3	112	1	16	—	74	
Gonorrhoea	54	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	3	—	—	—
Tetanus	5	4	1	—	1	1	—	—	1	—	—	—	7	5	1	1	4	4	1	1	7	
Leprosy	6	1	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Tuberculosis	63	41	8	5	9	5	10	10	—	—	42	5	48	37	9	6	30	24	4	—	22	1
Rheumatic Fever	4	—	1	—	3	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	2	—
Malaria Fever	17	—	6	—	2	—	2	—	7	—	46	—	7	1	52	—	7	—	16	—	23	
Syphilis	213	8	—	—	—	—	—	—	196	—	32	—	7	—	—	—	1	—	5	—	13	—
Ankylostomiasis	—	—	—	—	—	—	—	—	—	—	—	—	28	—	132	1	1	—	20	—	—	—
Scurvy	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	1	
Epidemic Ulcer	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Leishmaniasis	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
TOTALS	1486	217	379	51	390	32	112	57	2440	182	158	7	415	156	750	75	748	67	390	36	416	5

IDENCE OF INFECTIOUS DISEASES BY LOCATIONS FOR 1931.

Jaffa District		Tel-Aviv		Ramleh and District		Gaza and District		Majdal and District		Haifa Town		Haifa District		Acre and District		Nazareth and District		Nablus and District		Tulkarem and District		Tiberias and District		Safad and District		Jenin and District		TOTALS	
Cases	Deaths	Cases	Deaths	Cases	Deaths	Cases	Deaths	Cases	Deaths	Cases	Deaths	Cases	Deaths	Cases	Deaths	Cases	Deaths	Cases	Deaths	Cases	Deaths	Cases	Deaths	Cases	Deaths	Cases	Deaths	Cases	Deaths
—	—	1	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	3	2
—	—	—	—	—	—	—	—	—	—	1	1	3	1	—	—	—	—	—	—	—	—	—	—	—	—	—	—	6	2
—	—	—	—	—	—	—	—	—	—	2	1	—	—	—	—	2	2	—	—	—	—	—	—	—	—	—	—	4	3
18	—	41	—	20	—	6	—	7	—	21	—	18	—	16	—	22	—	19	—	10	—	50	—	36	—	—	—	329	1
11	1	18	—	1	—	—	—	—	—	29	2	25	1	—	—	8	—	1	1	—	—	3	—	2	1	—	—	125	12
52	1	72	3	4	—	—	—	—	—	37	3	24	—	2	—	27	1	—	—	—	—	18	—	16	—	—	—	297	12
6	1	14	1	—	—	4	1	—	—	19	4	11	—	2	—	6	1	9	1	—	—	10	—	3	1	—	—	146	18
1	—	2	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	4	—
1	—	—	—	—	—	—	—	—	—	—	—	1	1	—	—	—	—	1	1	—	—	—	—	1	1	—	—	6	5
3	1	10	1	2	—	—	—	—	—	4	—	—	—	4	—	2	—	—	—	16	—	4	1	—	—	—	—	108	6
243	41	187	2	296	35	187	17	302	16	106	23	175	14	45	—	251	96	1167	118	328	42	435	54	701	29	321	—	7783	731
23	—	6	—	—	—	1	—	10	—	9	—	2	—	—	—	32	—	—	—	2	—	46	—	9	—	—	—	185	—
47	2	81	1	—	—	2	—	—	—	7	—	4	1	—	—	3	—	6	—	—	—	—	—	—	—	—	—	204	5
14	14	29	29	1	—	52	18	6	3	35	28	6	3	21	5	55	24	61	24	51	9	30	9	16	3	—	—	709	414
—	—	—	—	—	—	4	2	—	—	2	1	1	1	—	—	—	—	5	1	—	—	4	2	—	—	—	—	40	21
—	—	—	—	—	—	—	—	—	—	1	—	2	—	—	—	—	—	—	—	1	—	—	—	—	—	—	—	16	—
24	—	68	—	—	—	—	—	3	—	5	—	4	—	—	—	—	—	—	—	1	—	4	—	—	—	—	—	372	4
1	—	1	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	3	—	—	—	—	—	—	—	10	—
71	3	63	1	1	—	18	3	—	—	175	12	39	3	18	2	101	6	52	4	—	—	17	1	42	3	—	—	905	76
2	—	—	—	—	—	—	—	—	—	29	—	4	—	—	—	6	—	—	—	—	—	4	—	3	—	—	—	51	—
—	—	—	—	—	—	—	—	—	—	2	—	9	—	—	—	3	—	—	—	—	—	—	—	—	—	—	—	16	—
39	3	112	1	16	—	74	1	—	—	12	—	13	—	9	—	17	—	147	—	117	—	44	1	115	1	19	—	952	14
—	—	—	—	3	—	—	—	—	—	125	—	10	—	3	—	—	—	—	—	—	—	—	—	—	—	—	—	195	—
1	1	4	4	1	1	7	2	—	—	6	3	—	—	—	—	1	1	9	6	1	1	—	—	1	1	—	—	46	30
—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	1	1	—	—	7	2
9	6	30	24	4	—	22	10	1	1	114	19	63	7	79	10	7	5	8	2	8	9	9	5	29	17	81	12	644	230
—	—	—	—	—	—	2	—	—	—	19	—	30	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	59	—
52	—	7	—	16	—	23	1	3	—	12	1	106	—	—	—	20	—	—	—	387	—	94	—	—	—	—	—	807	3
—	—	1	—	5	—	13	—	—	—	215	7	5	—	2	—	—	—	3	—	—	—	—	—	—	—	—	—	692	15
32	1	1	—	20	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	1	—	—	—	—	—	—	—	182	1
—	—	—	—	—	—	1	1	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	1	1
—	—	—	—	—	—	—	—	—	—	4	—	8	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	12	—
—	—	—	—	—	—	—	—	—	—	1	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	1	—
50	75	748	67	390	36	416	56	332	20	992	105	563	32	201	17	563	136	1488	158	926	61	772	73	975	58	421	12	14917	1608

CASE AND DEATH INCIDENCE OF INFECTIOUS DISEASES BY MONTHS FOR THE YEAR 1931.

	January		February		March		April		May		June		July		August		September		October		November		December		TOTALS	
	Cases	Deaths	Cases	Deaths	Cases	Deaths	Cases	Deaths	Cases	Deaths	Cases	Deaths	Cases	Deaths	Cases	Deaths	Cases	Deaths	Cases	Deaths	Cases	Deaths	Cases	Deaths	Cases	Deaths
Acute Poliomyelitis	—	—	—	—	—	—	—	—	—	—	—	—	—	—	1	—	1	1	—	—	1	1	—	—	3	2
Anthrax	1	—	1	—	—	—	—	—	—	—	—	—	1	1	1	1	—	—	1	—	—	—	1	—	6	2
Cerebro-Spinal Meningitis	—	—	—	—	3	3	—	—	—	—	—	—	—	—	—	—	—	—	1	—	—	—	—	—	4	3
Chicken Pox	21	—	19	—	70	—	46	—	52	—	35	—	18	1	10	—	2	—	3	—	15	—	38	—	329	1
Diphtheria	6	—	3	—	10	2	1	—	4	—	7	—	8	—	13	2	26	1	20	1	14	5	13	1	125	12
Dysentery	24	1	13	—	9	—	11	—	34	—	27	1	13	—	37	3	36	2	29	1	45	3	19	1	297	12
Erysipelas	14	2	15	2	9	1	9	2	12	2	14	1	10	2	11	1	14	3	13	—	11	2	14	—	146	18
German Measles	—	—	—	—	—	—	1	—	1	—	—	—	—	—	—	—	—	—	—	—	—	—	2	—	4	—
Hydrophobia	—	—	—	—	3	3	—	—	—	—	—	—	—	—	—	—	1	1	1	1	—	—	1	—	6	5
Influenza	53	2	18	3	10	—	4	—	14	1	3	—	—	—	1	—	—	—	1	—	—	—	4	—	108	6
Measles	1165	163	693	67	945	53	736	53	499	43	309	34	285	35	328	17	153	4	349	18	353	37	1968	207	7783	731
Mumps	21	—	58	—	40	—	6	—	11	—	9	—	15	—	8	—	—	—	4	—	3	—	7	—	185	—
Para-typhoid Fever	13	—	5	—	4	2	7	—	7	—	18	—	17	—	26	—	38	—	25	1	29	1	15	1	204	5
Pneumonia	88	49	89	47	71	39	57	37	62	25	54	37	47	37	39	20	25	19	41	22	59	31	77	51	709	414
Puerperal Fever	3	2	3	3	3	1	1	1	5	1	1	—	1	1	9	5	1	2	8	3	2	—	3	2	40	21
Relapsing Fever	1	—	2	—	—	—	—	—	2	—	2	—	4	—	1	—	2	—	2	—	—	—	—	—	16	—
Scarlet Fever	3	—	7	—	3	—	1	—	10	1	19	—	108	1	80	2	53	—	30	—	27	—	31	—	372	4
Schistosomiasis	—	—	2	—	1	—	1	—	—	—	—	—	—	—	1	—	1	—	2	—	1	—	1	—	10	—
Typhoid Fever	40	4	71	2	48	5	23	—	31	4	118	3	117	9	86	5	98	11	123	12	81	7	69	14	905	76
Typhus	3	—	3	—	4	—	5	—	4	—	8	—	4	—	8	—	4	—	3	—	2	—	3	—	51	—
Undulant Fever	—	—	—	—	6	—	2	—	1	—	1	—	1	—	2	—	—	—	—	—	—	—	3	—	16	—
Whooping Cough	63	1	117	2	218	2	163	—	145	7	70	—	103	1	5	—	27	1	21	—	10	—	10	—	952	14
Gonorrhoea	13	—	9	—	21	—	23	—	20	—	27	—	12	—	14	—	11	—	19	—	18	—	8	—	195	—
Tetanus	4	2	5	3	3	1	6	3	8	5	2	2	5	4	1	1	2	2	2	1	4	3	4	3	46	30
Leprosy	—	—	1	—	2	—	—	—	1	—	—	—	2	—	1	1	—	1	—	—	—	—	—	—	7	2
Tuberculosis	47	20	52	20	46	21	31	15	42	16	165	22	32	22	35	21	36	15	79	22	32	14	47	22	644	230
Rheumatic Fever	6	—	2	—	1	—	6	—	6	—	6	—	5	—	2	—	5	—	8	—	5	—	7	—	59	—
Malaria	72	—	46	—	45	—	27	—	40	—	52	—	114	1	136	—	78	—	73	—	74	1	50	—	807	3
Syphilis	48	—	80	1	77	—	73	—	68	—	45	3	59	2	43	4	60	—	55	1	41	2	43	2	692	15
Ankylostomiasis	—	—	—	—	5	—	—	—	—	—	37	—	53	—	19	—	53	—	6	—	3	—	6	1	182	1
Scurvy	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	1	1	1	1
Epidemic Ulcer	—	—	—	—	—	—	—	—	—	—	—	—	—	—	8	—	2	—	2	—	—	—	—	—	12	—
Leishmaniasis	1	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	1	—
TOTALS	1713	246	1314	150	1657	133	1240	111	1079	105	1029	103	1034	117	926	83	729	63	921	84	830	107	2445	306	14917	1608

TUBERCULOSIS CLASSIFICATION 1931.

Towns of Palestine

	Respiratory System		Meninges and Central Nervous system. generally		Intestines and Peritonium		Vertebral Column		Joints		Skin and Sub-Cutaneous cellular tissue		Bones (Vertebral Column excluded)		Lymphatic system (mesenteric and retro peritoneal glands excepted)		Genito-urinary System		Organs other than the above		Disseminated acute		Disseminated chronic		TOTALS	
	C.	D.	C.	D.	C.	D.	C.	D.	C.	D.	C.	D.	C.	D.	C.	D.	C.	D.	C.	D.	C.	D.	C.	D.	C.	D.
Jerusalem	47	28	6	6	4	4	1	1	—	—	—	—	1	1	—	—	2	2	—	—	2	2	3	3	66	47
Ramallah	—	—	1	1	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	1	1
Bethlehem	5	5	—	—	4	4	1	1	—	—	—	—	—	—	—	—	—	—	—	—	1	1	—	—	11	11
Hebron	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Beersheba	7	1	—	—	—	—	—	—	—	—	6	—	1	—	—	—	—	—	—	—	—	—	—	—	14	1
Jaffa	45	34	—	—	4	4	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	49	38
Tel-Aviv	26	20	3	3	—	—	—	—	—	—	—	—	1	1	—	—	—	—	—	—	—	—	—	—	30	24
Ramleh	1	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	1	—
Gaza	15	7	1	1	—	—	—	—	—	—	—	—	—	—	1	1	—	—	—	—	—	—	—	—	17	9
Majdal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Haifa	81	12	3	3	2	2	9	1	3	—	2	—	3	—	11	1	—	—	—	—	—	—	—	—	114	19
Acre	15	2	—	—	—	—	1	—	—	—	1	—	2	1	9	—	—	—	—	—	—	—	—	—	28	3
Nazareth	19	2	—	—	2	2	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	21	4
Nablus	8	4	1	1	2	2	1	1	—	—	—	—	3	2	2	1	—	—	—	—	—	—	—	—	17	11
Tulkarem	2	2	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	2	2
Tiberias	—	2	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	2
Safad	82	14	—	—	—	2	—	—	—	—	—	—	—	—	—	1	—	—	—	—	—	—	—	—	82	17
Jenin	6	4	—	—	—	—	1	—	3	—	—	—	—	—	1	—	—	—	—	—	—	—	—	—	11	4
Towns	359	137	15	15	18	20	14	4	6	—	9	—	11	5	24	4	2	2	—	—	3	3	3	3	464	193
Villages	192	44	9	1	8	2	5	—	12	—	12	—	21	—	22	4	2	—	—	—	—	—	—	—	283	51
TOTALS	551	181	24	16	26	22	19	4	18	—	21	—	32	5	46	8	4	2	—	—	3	3	3	3	747	244

Villages of Palestine

	Respiratory System		Meninges and central Nervous System, generally		Intestines and Peritonium		Vertebral Column		Joints		Skin and Sub-Cutaneous cellular tissue		Bones (Vertebral Column excluded)		Lymphatic system (mesenteric and retro peritoneal glands excepted)		Genito-urinary System		Organs other than the above		Disseminated acute		Disseminated chronic		TOTALS	
	C.	D.	C.	D.	C.	D.	C.	D.	C.	D.	C.	D.	C.	D.	C.	D.	C.	D.	C.	D.	C.	D.	C.	D.	C.	D.
Jerusalem	9	3	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	9	3
Ramallah	4	4	—	—	2	—	—	—	—	—	—	—	—	—	2	—	—	—	—	—	—	—	—	—	8	4
Bethlehem	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Hebron	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Beersheba	16	4	—	—	2	—	1	—	2	—	4	—	2	—	—	—	1	—	—	—	—	—	—	—	28	4
Jaffa	8	5	—	—	—	—	—	—	—	—	—	—	—	—	1	1	—	—	—	—	—	—	—	—	9	6
Tel-Aviv	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Ramleh	3	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	3	—
Gaza	5	1	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	5	1
Majdal	1	1	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	1	1
Haifa	45	6	8	—	2	1	—	—	1	—	6	—	1	—	—	—	—	—	—	—	—	—	—	—	63	7
Acre	36	7	—	—	—	—	3	—	2	—	—	—	2	—	7	—	1	—	—	—	—	—	—	—	51	7
Nazareth	16	—	1	1	—	—	—	—	—	—	—	—	1	—	—	—	—	—	—	—	—	—	—	—	18	1
Nablus	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Tulkarem	3	4	—	—	—	—	—	—	—	—	—	—	—	—	3	3	—	—	—	—	—	—	—	—	6	7
Tiberias	3	—	—	—	—	—	1	—	1	—	—	—	1	—	2	—	—	—	—	—	—	—	—	—	8	—
Safad	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Jenin	43	9	—	—	2	1	—	—	6	—	2	—	14	—	7	—	—	—	—	—	—	—	—	—	74	10
Towns	192	44	9	1	8	2	5	—	12	—	12	—	21	—	22	4	2	—	—	—	—	—	—	—	283	51
Villages																										
TOTALS																										

7. Malaria and Antimalaria Measures.

(a) Incidence of Malaria.

The general incidence was lower than in 1930. The spleen rate found in 18,221 children examined in town schools was 1.4% and in 39,767 children examined in villages and rural districts was 5.4%. The percentage of malaria cases of total attendances at dispensaries was 1.77% compared with 2.82% in 1930.

The average rainfall during the preceding rainy season was 444 mm. compared with 553 mm. in 1930.

The following tables provide for comparative purposes the record of preceding years:-

(b) Spleen Rate.

Year	Number of Towns or Villages	Number of Children examined	Number of Children with Enlarged Spleen. Degree of Enlargement			Spleen Rate
			Slight	Moderate	Great	
			TOWN SCHOOL CHILDREN			
1927	19	10647	295	34	5	3.1%
1928	19	14922	292	39	1	2.2%
1929	19	13699	276	53	13	2.5%
1930	19	16894	210	45	7	1.5%
1931	19	18221	199	44	15	1.4%
			VILLAGE CHILDREN			
1927	526	36719	2005	938	393	9.1%
1928	561	37668	2084	717	320	7.9%
1929	528	38491	1981	981	358	8.6%
1930	520	39449	2021	1051	289	8.5%
1931	538	39767	1421	543	210	5.4%

(c) Percentage of Malaria Cases among Dispensary Patients.

Year	Total Number of Dispensary Patients	Number of Patients Treated for Malaria	Percentage of Malaria Patients
1923	270,945	13,280	4.90
1924	285,215	11,732	4.12
1925	344,150	7,835	2.27
1926	379,029	7,956	2.09
1927	394,932	9,069	2.29
1928	410,854	7,207	1.75
1929	404,188	11,404	2.82
1930	406,623	11,503	2.82
1931	458,941	8,147	1.77

The relation of average rainfall to the general incidence of malaria is shown below:—

Year	1925	1926	1927	1928	1929	1920	1931
Rainfall in mm. during season ending April	452	495	540	408	658	553	444
Percentage of Malaria cases among dispensary patients	2.27	2.09	2.29	1.75	2.82	2.82	1.77

The combined spleen rates of town and village children for the Public Health Districts of the country over a period of years are as follows:—

Medical District	1926	1927	1928	1929	1930	1931
Jerusalem	2.1	2.4	1.3	1.0	0.6	0.4
Jaffa	4.0	3.4	1.0	1.2	0.8	0.4
Haifa	8.7	10.4	8.7	7.8	7.2	4.9
Samaria and Galilee	17.2	14.5	15.0	19.8	15.1	10.2

A reduction of the spleen rate is evident in all districts. The index of malaria still remains high in Samaria and Galilee District. The highest rate is found at Baisan town, viz., 45% in 318 examinations. In three towns — Tulkarem, Jenin, and Beersheba — the rate falls between 2% and 3%. In two towns the rate is between 1% and 2%. In the remaining 13 towns, the rate is below 1%.

In the rural districts, the highest rate is found in the villages of Safad District — 26% in 2228 children examined. Baisan, Jenin and Acre Districts give rates of 16%, 11%, and 10% respectively. Nablus, Tulkarem, Tiberias and Haifa Districts give rates of 5% to 8%. In the remaining 12 districts the rate is below 3%.

Though there has been a more or less steady decline of malaria as reflected by this index, the burden of malaria still remains high in certain areas where the expenditure of capital sums is still required to bring mosquito-breeding areas into more controllable condition.

The malaria season was not marked by any unusual outbreaks of epidemic nature. For the first time in a number of years, a few primary infections occurred in Jerusalem town. A reduction of the municipal credits provided for cistern control necessitated a reduction in the staff. The routine supervision of breeding places in an outlying area could not be effectively maintained by an already overworked staff. The occurrence of primary infections indicates the great danger of ill-considered economy in this essential service. The urban area of Jerusalem has undergone great expansion in recent years while the cost of antimalarial measures has not increased with the extension of areas brought under systematic control.

A compulsory curtailment of activities has its inevitable result, and it is hoped that this occurrence will be borne in mind by those responsible for sanctioning credits for this service in future years.

The value of the special work completed near Hedera is now evident and this village which in past years has always suffered from a high incidence of malaria in early summer, is now benefitting from the measures carried out.

In 1930 when these measures were partly effective, 89 primary cases occurred in the months June to September. In 1931 the cases during the same period were only 29.

(d) Antimalarial Measures.

Routine measures of supervision and control were maintained. In many areas of the country, the effect of the drainage work completed in previous years has reduced the amount of preliminary work required in spring to clean channels and bring them into a condition suitable for control. Experience in certain areas indicates that open chanelling is generally more economical to maintain than subsoil tile drainage which in a few seasons becomes blocked by silt or the roots of vegetation and is costly to lift and relay.

The routine measures in rural districts involved 48,614 days labour provided by property owners on cleaning and maintenance of channels. The antilarval measures involving chemical control by oil or Paris Green were for the most part executed by the staff of the Department supplemented by temporary staff during the season of intensive breeding.

Routine measures in villages and rural districts included the oiling of 267,281 potential breeding places, the mosquito-proofing of 4458 wells and cisterns; 35,593 kilos of solar oil, 1940 kilos of Paris Green were expended by the Department in these areas.

In towns 788,026 places were oiled periodically, 9095 were rendered mosquito proof, and 67,433 kilos of solar oil were used. In this connection trial was made of antimalarial mixtures marketed as a substitute for solar oil. In Palestine, the bulk of the oil expended is used on water cisterns or wells used for drinking purposes, and solar oil has been found to impart a less disagreable taste to water treated than antimalarial mixtures, and is, therefore, preferable.

In advance of the Nebi Rubin festival when 30,000-40,000 persons congregate during the month of September close by the Rubin marsh and river, it was possible, on account of the completion of the drainage scheme to bring the whole area under effective control. It was unnecessary, therefore, to resort to adult mosquito destruction, except on a very minor scale, in the encampment during the period of the festival.

(e) Drainage and Reclamation Schemes.

No large schemes of drainage or reclamation were undertaken directly by Government, but a considerable amount of work was involved in supervising the maintenance of existing schemes, and a number of minor schemes or extensions of existing works were carried out directly by the Department's staff.

The aqueduct supplying the town of Acre with water was repaired and a number of very prolific breeding places, extremely difficult to control, eliminated. The engineering aspects of the work were dealt with by the Assistant Sanitary Engineer.

The drainage of the Qazaza swamp was extended, the Government participating with the settlers in the cost of this work.

A scheme for the control of Wadi Gaza was completed with the assistance of labour supplied by the Archaeological Expedition of the British School of Archaeology engaged in the excavations at Tel-el-Ajjul.

A scheme for control at the mineral springs at El-Hamme was prepared by the Department and partly completed by the Concessionaire under the supervision of the technical officers of the Department.

Public Works Department completed further improvements to the Kishon drainage scheme on lines prepared by the Department in consultation with the Malarial Engineer of the Rockefeller Foundation.

The final survey and estimates of the cost of draining the lower portion of the Naamein River and swamps near Acre were completed.

The Haifa Bay Development Company proceeded with reclamation work at Fuara and a large additional area in the direction of Tel Sabla was drained by open concrete channels.

Several hundred meters of subsidiary channels in the upper part of the Rubin marshes were completed by the Department with funds provided by the Supreme Moslem Council.

At Kabbara, the Palestine Jewish Colonisation Association made steady progress in the drainage and irrigation works.

The Palestine Electric Corporation extended its work on the Jordan reaches above Jisr-el-Majamie and made preparations for the control of the Yarmuk basin.

(f) Units attached to the Department of Health.

The Malaria Research Unit maintained by funds placed at the disposal of the Department by the Jewish Joint Distribution Committee of America was disbanded and the remaining staff absorbed into the normal establishment of the Department. The valuable work carried out by this unit under the direction of the Department has been reviewed in previous annual reports.

ANTIMALARIA STATISTICS FOR THE YEAR 1931.

Towns of Palestine.

Month	Number of fresh possible breeding places discovered.				Number of Places							Number of prosecutions	Number of kilos of paraffin used.	Number of kilos of crude oil used	Number of kilos of solar oil used
						Breeding									
	Wells	Cisterns	Other Places	Cesspits	Inspected	Anopheles	Culex	Anopheles and Culex	Oiled	Made Mosquito-proof by sealing, covering or other means	To which pumps fitted				
January	6	48	321	341	172813	24	713	21	58791	178	47	14	—	130	5265
February	14	103	175	184	161768	15	493	1	51241	378	13	19	—	105	4778
March	7	15	55	147	182345	6	744	10	60885	1183	17	30	—	185	5731
April	11	12	56	46	179688	6	1115	2	60825	1768	18	10	—	175	5599
May	10	8	49	26	185567	12	1386	2	62661	399	17	18	—	195	5800
June	46	15	158	143	187730	13	1926	2	61969	570	95	40	—	190	5202
July	6	832	60	166	209827	27	2442	3	68339	261	11	24	—	183	5480
August	35	829	1109	1485	221137	14	2748	5	81493	2843	158	8	—	245	6929
September	17	79	67	107	213959	5	2413	7	74025	349	17	8	—	217	6027
October	2	31	83	126	218691	4	2176	7	71169	386	32	21	—	233	6082
November	—	9	39	102	204620	3	1268	5	69590	211	18	26	—	120	5405
December	17	20	126	298	212366	3	754	3	67038	569	42	13	—	120	5135
TOTALS	171	2001	2298	3171	2350511	132	18178	68	788026	9095	485	231	—	2098	67433

ANTIMALARIA STATISTICS FOR THE YEAR 1931

Villages of Palestine.

	No. of visits to villages	No. of new wells and cisterns found	No. of other new possible breeding places found	No. of places in which mosquito larvae found	No. of places oiled	No. of places closed, repaired and made mosquito proof	No. of persons treated with quinine	No. of prosecutions	No. of kilos of Paris Green used	No. of kilos of crude oil used	No. of kilos of solar oil used	Grammes of quinine expended
January	1301	106	18	1589	23076	2815	86	11	—	—	2702	600
February	1168	7	19	1433	21051	46	147	14	1	—	2489	760
March	1257	116	145	1480	23272	297	107	46	91	—	2944	416
April	1325	90	177	1165	22906	289	246	214	466	—	3020	1256
May	1416	34	97	951	22354	243	250	231	411	—	2639	1397
June	1382	205	89	789	23031	155	274	143	231	—	2816	1616
July	1351	142	12	770	23774	189	2124	197	256	—	3460	1560
August	1457	93	162	673	23515	127	539	116	116	--	3334	2872
September	1340	60	9	710	22534	94	241	129	101	—	3555	1272
October	1454	56	63	586	21186	75	240	81	76	—	3332	1232
November	1301	47	3	463	19536	78	317	34	136	—	2650	864
December	1268	64	14	758	21046	50	215	98	56	—	2650	600
TOTAL	16020	1020	808	11367	267281	4458	4786	1314	1941	—	35591	14445

8. Hydrophobia.

There were six deaths from this disease in Ramallah, Bethlehem, Jaffa, Nablus and Safad respectively.

Details of these cases are given in the Annual Report of the Laboratory Section under the heading "Antirabies Institute".

ANIMALS DESTROYED IN ANTIRABIC CAMPAIGN, 1931.

	Number of Animals Killed in Antirabic Measures				
	Dept. of Health	Dept. of Agriculture	Dept. of Police and Prisons	Municipalities	Other Sources
Jerusalem	—	328	32	1679	—
Ramallah	—	253	—	21	—
Bethlehem	18	—	—	23	1
Hebron	—	—	216	—	—
Beersheba	—	51	59	72	—
Jaffa	—	650	—	1825	—
Tel-Aviv	—	189	—	2507	—
Ramleh	—	648	—	85	—
Gaza	—	635	—	414	—
Majdal	—	712	—	50	—
Haifa	—	53	—	922	—
Acre	—	176	—	—	—
Nazareth	—	109	160	162	—
Nablus	—	636	1587	35	—
Tulkarem	—	543	186	—	—
Tiberias	50	—	200	—	—
Safad	—	512	73	—	—
Jenin	—	1475	382	—	1063
TOTALS	68	6970	2895	7795	1064

III. MEDICAL SECTION.

1. Government and Municipal Hospitals.

The Department maintains hospitals in Jerusalem and Haifa and participates in the maintenance of Municipal Hospitals at Jaffa, Tel-Aviv, Nablus, Gaza, Beersheba and Acre. Arising out of economies necessitated by the recommendations of the Economy Commission, the Beersheba and Acre hospitals will be closed and a small amount of accommodation retained for emergency cases and infectious diseases at each place. At the same time, an expansion of hospital accommodation is envisaged in Haifa to meet the requirements of the increasing population in that town and in the rural areas of the Northern District.

Structural improvement in the various hospitals for which the Department is responsible was limited by the general restriction of Government expenditure. Minor improvements were, however, effected costing approximately £P. 700. In addition, the Hospital Committee at Jaffa carried out improvement of the drainage disposal system.

At Jaffa, Government equipped and opened a bacteriological laboratory and employed a trained bacteriologist who also undertakes care of all patients in the isolation section. The construction of nurses quarters at Gaza Municipal Hospital was completed. At Beersheba, the Committee completed the construction of the new operating room with annexes and commenced the construction of rooms for porter, nurses, and an additional ward.

The total number of beds in Government and Municipal Hospitals was 501 of which a minimum of 114 are reserved for infectious diseases. The daily average number of beds occupied was 383. The total number of patients admitted was 11893. Of these 4814 were Moslems, 1388 Christians and 5667 Jews. The total number of sick days amounted to 131,058.

Amongst patients treated there were 33 members of His Majesty's Forces, 26 Trans-Jordan Frontier Force, 329 British Police, 339 Palestine Police, 233 Railway employees, 431 other Government employees and 347 prisoners.

In addition to these patients 1057 prisoners were treated by the Department in sick detention wards of the Central Prisons and 18 prisoners suffering from Tuberculosis were admitted to the special ward of Acre Prison.

The X-Ray Department in the Government Hospital, Jerusalem, was improved by the re-arrangement of the accommodation. The work of this Department of the hospital continues to increase, 1153 cases were dealt with and 2,560 radiographs taken as compared with 1045 cases and 2121 radiographs the previous year.

2. Medical Care of the British Community by Specialist Surgeon.

(a) British patients.

During the year 1931, a total of 7104 visits were made on British and foreign patients throughout the country, mainly in Jerusalem.

October and November were the busiest months. Of conditions prevalent, the usual respiratory and intestinal upsets have formed the bulk of the illnesses. A classification of cases admitted to hospital is given below. Influenza, sandfly fever, tonsilitis with bronchitis, gastritis and bowel complaints are in the majority; in addition, it will be noted that appendicitis heads the list. Measles appeared in the spring; measles and scarlet fever in the winter. Infectious cases treated at home were as follows: — M. T. Malaria 1; B. T. Malaria 1; Measles 5; Chicken Pox 2; Mumps 3; Scarlet Fever 2 (with two contacts developing subsequently); Dysentery (Bacillary) 1. The cases of jaundice which appeared had no relation to each other or suggestion of an epidemic nature.

(b) British Section, Government Hospital, Jerusalem.

248 patients were admitted, 52 more than in 1930; 154 of these were British Police, 26 Government Officers, 2 Trans-Jordan Frontier Force Senior Officers, 9 Military, 15 non-official residents and 42 women and children. Only one death occurred in the year, a case of pneumonia which was brought in late in the disease and died very shortly after. 56 operations were performed. There were 8 maternity cases.

The accommodation for women and children was on many occasions taxed to its full capacity.

(c) General Surgery in Jerusalem Hospital.

777 operations were performed during the year in collaborarion with the Medical Officers of the hospital, 331 being classed as major.

Appendicitis accounted for 53, 25 of which were British patients, 11 of these were from the British Police. The more severe types appeared among Palestinians, probably due to delay in seeking medical aid. A number of cases of the chronic type showed on X-Ray examination that the appendix was at fault in producing gastric symptoms and its removal broke the "vicious circle".

Herniotomy was performed on 24 cases and it may be surprising that more are not done; this is largely because the hospital is so full that hernias are accepted only when a bed can be spared and the majority of cases are Government employees or indigent persons. It must be mentioned that a certain number of these are strangulated cases and emergencies.

A list of operations is given below, and it will be seen that a fair variety of operative work is undertaken. Fractured skulls were relatively common, haemorrhoids 16 (it is the practice to operate only on cases not suitable for injection), gynaecological 21, obstetrical 63 which include 15 forceps, 13 podalic versions, 2 Caesarean, 2 ruptured ectopics etc. This latter branch of the hospital activity is increasing in importance and many cases come from a distance in advanced stages of labour.

(d) District and Other Hospitals.

115 visits, mainly consultative, were made throughout the country; this is slightly less than in 1931, visits to Haifa and the North being less necessary because of the presence in Haifa of a British Surgeon. They were as follows:—

Haifa Government Hospital	3
Acre Municipal Hospital	1
Nablus Watan Hospital	7
Jaffa Municipal Hospital	11
Beersheba Municipal Hospital	1
Bethlehem Mental Hospital	4
Scottish Mission Hospital, Tiberias	3
St. Luke's Hospital, Hebron	3
Military Reception Station, Jerusalem	9
Palestine General Hospital, Sarafand	9
Non Government Hospitals, Jerusalem	64

(e) Hospital Amenities.

The rate of improvement in most hospitals seen has been slower this year, partly due to lack of funds and necessary economies. Many things are in mind, such as newer forms of electrical apparatus for treatment as well as diagnosis etc. The X-Ray section in Jerusalem has been vastly improved by eliminating the engine and using power from main, thus allowing of more room space for apparatus and development of films. An X-Ray set of the trolley type arrived in Haifa. This will allow of earlier diagnosis and should eliminate the present need of referring cases from the North to Jerusalem. 1153 cases were examined and 2560 radiographs taken this year.

The Surgeon Specialist's office was moved to the main building and the change has been a distinct improvement both for patients and the convenience of the Medical Officers.

In regard to venereal cases among the British Police, arrangements are being made for construction of a new treatment centre in Mount Scopus Camp. It will be noted that fewer cases were admitted to Hospital, 4 Syphilis and 3 Gonorrhoea against a total of 15 last year. When the new treatment centre is complete, the necessity of admission to hospital will be less.

The Honorary Consultant Physician, Dr. Orr-Ewing, and the Honorary Consultant Ophthalmologist, Dr. Strathearn, have afforded great assistance in obscure and special cases, and it is a pleasure to place on record a warm appreciation of their valuable services during the year.

(f) Major Operations—Jerusalem Hospital.

Amputations	6
Amputation of Breast for Cancer	1
Appendicectomy	53
Enterorrhaphy	2
Fractured skull (debridement etc.)	15
Gastro-enterostomy	1
Gynaecological...	21
Herniotomy	24
Haemorrhoidectomy	16
Hydatid Cysts	2
Hysterectomy	2
Laparotomy (emergency or exploratomy)	9
Lithotomy (suprapubic)	1
Litholapaxy	1
Myomectomy on pregnant uterus, no abortion... ...	1
Nephrolithotomy	1
Nerve Suture, successful	1

Obstetrical:	
Caesarean Section	2
Embryotomy	4
Forceps	15
Ruptured Ectopic	2
Version (podalic)	13
Other operations	27
Orchidectomy	1
Osteosynthesis	5
Ovariotomy	1
Tonsillectomy	5
Tumours (excision) etc. etc.	8

(g) Diseases of British Patients Admitted to Hospital

	Residents		Visitors	
General Diseases	Cases	Deaths	Cases	Deaths
Influenza	10	—	1	—
Relapsing Fever	1	—	—	—
Malaria (B.T. 4; M.T. 1)	5	—	—	—
Rheumatism	1	—	—	—
Sandfly Fever	16	—	—	—
Anaemia	1	—	—	—
Resipiratory System and Heart				
Pharyngitis and Tonsillitis	22	—	—	—
Bronchitis	4	—	—	—
Pneumonia (1 Traumatic)	6	1	—	—
Pleurisy	2	—	—	—
Tuberculosis Lungs	1	—	1	—
Arhythmia	2	—	—	—
Alimentary System				
Gastritis	13	—	—	—
Gastric Ulcer	1	—	—	—
Duodenal Ulcer	1	—	—	—
Periduodenitis	1	—	—	—
Appendicitis	25	—	—	—
Diarrhoea	8	—	—	—
Dysentery	1	—	—	—
Haemorrhoids	11	—	1	—
Jaundice	5	—	—	—
Constipation	4	—	—	—
Female Reproductive System				
Confinements	8	—	—	—
Fibroids	1	—	—	—
Ovarian Cyst	1	—	—	—
Minor Conditions	3	—	—	—
Bones and Joints				
Sprains	7	—	—	—
Fractures	9	—	—	—
Synovitis	3	—	—	—
Dislocation	1	—	—	—
Cartilage of knee	1	—	—	—
Infectious Diseases				
Syphilis	4	—	—	—
Gonorrhoea	3	—	—	—
Diphtheria	1	—	—	—
Various				
Otitis Media	3	—	—	—
Abscesses	11	—	1	—
Stone in Ureter	—	—	—	—
Intermittent Hydronephrosis	1	—	—	—
Wounds	14	—	—	—
Nasal Conditions	3	—	—	—
Skin Conditions (Sunburn 3)	5	—	—	—
Concussion	2	—	—	—
Minor	22	—	—	—
	244	1	4	0

3. Medical Care of British Community of Haifa and District by Senior Medical Officer (Railways).

(a) Treatment at Government Hospital, Haifa.

In all, there were 98 admissions of British patients to the Government Hospital, Haifa, made up as follows: —

British Police 57; Troops 19; Women and Children 16; Government Officials 5; Civilians (male) 1.

The conditions treated were as follows: —

General diseases	16	— 1 died.
Respiratory system	10	
Alimentary system	22	
Female reproductive system	6	
Bones and joints	5	
Infectious diseases	4	
Genito-urinary system	7	
Various	27	

Major surgical operations amounted to 14 in number and were as follows: —

Appendicectomy	5
Tonsillectomy	2
Colporrhaphy	1
Exploratory laparotomy and drainage of abscess	1
Inguinal Herniotomy and radical cure	1
Excision of dislocated cartilage of knee	1
Varicocele	1
Excision of tubercular rib	1
Curettage	1

In addition there were performed about 6 minor operations of various kinds on British in patients. There was one death that of an Army Sergeant suffering from combined M. T. and B.T. malaria who had symptoms 4 days before reporting sick.

(b) Treatment of Government Officials at British Clinic, Haifa Hospital.

This according to sick reports amounts to 110 patients, but actually should read more than this as quite a number attend without sick reports, or attend on more than one occasion during the period of off duty prescribed by a previous sick report.

(c) Visits to Non-Official Community.

Visits to non-official community at their homes or at the hospital clinic amounted to 349. Generally the cases cover a wide variety of conditions. The British community did not appear to have any susceptibility for any particular disease so that in no sense, beyond some mild influenza in the spring and winter of the year, was there any kind of epidemic amongst the British community in Haifa or district.

(d) British Police.

These account for the bulk of the in-patients in the British section at the hospital, viz., 57 men who were treated for the usual wide variety of conditions very few of which might be accounted for by the nature of the men's duties or of the endemic diseases of the country:- Malaria 5 (M.T. 2, B.T. 3); Typhoid 1; Phlebotomus Fever 2.

The accommodation for British male patients consists of 1 single bedded room and one ward of 4 beds. The troops have a very inadequate Reception Station and in any case no Nursing Sisters. Any cases beyond the resources of the Reception Station and too ill for the railway journey to Sarafand is accommodated in the Government Hospital, Haifa, so that very often there is uncomfortable pressure on the bed accommodation available. The situation is likely to grow more difficult with the concentration of the troops at Haifa and the steady growth of the British population in Haifa.

General supervision over the living quarters, rations, sanitary arrangements etc. of the Police in Haifa District was exercised and with this object inspections were made at the Police barracks on Carmel and at Nazareth.

(e) Treatment and Consultations in the Haifa District.

Frequent visits were necessary to Acre, Nazareth and Athlit for attendance on British patients and to the two former places in consulation with local doctors on Palestinian patients. One visit was made to Safad to see a British Police Officer.

(f) Commentary.

In addition to care of the British Community the Senior Medical Officer (Railways) has shared in the work of the Government Hospital, Haifa. I would like to record the mutual benefit resulting from this cooperation with the Medical Officer in charge and with that of the

Medical Officer in charge of the Government Laboratory. The work at Haifa is seriously hampered in some ways, the nature of the buildings in the General Hospital is anything but ideal and undoubtedly wastes a great deal of energy that should more properly be used in nursing and treatment. There is far too little space for good class Palestinian patients and no room for isolation of septic surgical cases. Moreover it is very necessary to install a minor operation theatre for dealing with minor and septic cases. Accuracy of diagnosis is of course very often impossible in the absence of X-Ray facilities and the usefulness and standard of the work at Haifa will be increased tremendously when this becomes available

4. Government Dispensaries.

Excluding Railway Clinics, there are 15 Government dispensaries and 3 Medical Inspection rooms.

In addition, the Medical Officers in charge of districts conduct regular weekly or fortnightly clinics in 7 villages. The general policy remains as in the past to restrict the work of these dispensaries to Government employees and to the poor except in areas where no facilities exist for the general public. In these localities, the general public are accepted for treatment at moderate charges.

The number of new cases attending for treatment was 100,951 compared with 94,925 in 1930. The total attendances at regular dispensaries and clinics for the past five years is shown beleow:—

Year:	1927	1928	1929	1930	1931
Attendances =	146,140	149,421	170,278	217,341	252,166

In addition to the regular clinics held, Medical Officers of the Department give advice and treatment to sick in the course of their tours of duty in the villages.

It will be noted that the general out patient treatment increases from year to year.

5. Voluntary Hospitals and Clinics.

The number of hospitals of this category was 27. The constitution of the Tel Aviv Hospital of the Hadassah Women's Zionist Organization of America was changed to that of a Municipal Hospital in accordance with the policy of the organization to transfer its medical activities gradually to the local communities. The organization still, however, bears about $50^{0}/_{0}$ of the cost of maintenance and will retain a representative on the committee of management.

The Peter Schweitzer Memorial Hospital of the Hadassah Medical Organisation at Tiberias was closed on account of lack of funds.

The nominal bedstrength of voluntary hospitals was 1621. This figure includes the bedstrength of special hospitals for ophthalmic disease, mental disease, leprosy, tuberculosis, and one convalescent home. Excluding these, the beds available for general medical and surgical treatment were 1364 but in a large number of cases, shortage of funds prevents the acceptance of patients to the full capacity of these voluntary institutions.

Of the 1364 general beds available the daily average number occupied was 910.4 and the total number of admissions was 24,782 of which 13,131 were Jews, 8,106 Moslems and 3,545 Christians and others.

Attendances at dispensaries maintained by voluntary agencies numbered 1,125,409 compared with 1,152,367 in 1930.

In addition, at the village clinics of these organizations, attendances were 465,109 compared with 501,500 in 1930.

The following table indicates the work done at these clinics:—

	Number of Clinics	Total Attendances	New Patients			
			Malaria	Eye Diseases	Other Diseases	Total
Hadassah Medical Organization	6110	149897	656	5540	16444	20640
Qupat Cholim	11550	220049	747	4768	85406	90921
Jointly Hadassah and Qupat Cholim	1008	16116	60	471	6092	6623
Colony Committees	3455	65623	219	1776	13730	15725
Church Missionary Society	320	13424	569	1416	5219	7204
TOTALS	22443	465109	2251	11971	126891	141113

Of 475,786 new patients at dispensaries and clinics classified by religion, 347,691 were Jews, 93,543 Moslems, and 34,552 Christians and other religions.

The Hadassah Medical Organization was compelled by reduction of foreign contributions to proceed actively with its scheme of reorganization and transfer of its undertakings to the local Jewish communities. The Tel-Aviv hospital was transferred to the Local Council which, with Government assistance of £P.2500 per annum, relieved the Hadassah Medical Organization of 50% of the cost of maintenance.

The Haifa hospital was closed for general cases and transferred to the local community as a hospital for maternity and children's diseases relieving the Hadassah Medical Organization of £P.2400 of the total maintenance cost of £P.6000 per annum

Other measures of re-organization undertaken are described as follows; increase of patients fees, general reduction of salaries, large reduction of staff and rationalisation of working methods, economies in administrative expenditures and close control of general expenditures and the grant of private practice to heads of departments in the Rothschild Hospital, Jerusalem, and the transfer of the rural medical service to the Qupat Cholim Amamit (Rural Sick Benefit Fund) founded by the organization with the assistance of the Palestinian Jewish Farmers Federation.

The Qupat Cholim (Sick Benefit Fund of the Jewish Labour Federation) maintained its hospital at Affula and its Arza Convalescent home at Motza, near Jerusalem, together with a summer convalescent home at Mt. Carmel. The fund has some 18,000 members who, with their families obtain medical benefit from the organization in various parts of the country.

The Shaare Zedek Hospital in Jerusalem placed at the disposal of the Government its infectious wards during an outbreak of scarlet fever.

Two cases of leprosy were admitted to the Leper Hospital maintained by the Moravian Mission in Jerusalem making the total number of inmates at the end of the year 22. Of these 10 were of the nodular form, 4 nervous, and 8 mixed.

6. Training of Nurses.

The customary examinations for nurses undergoing training in general nursing at recognised training hospitals were held in April and October. The examining boards for the Government Graduate Nurses' certificate are composed of doctors and matrons appointed from the staff of hospitals recognised as training schools. The following were the numbers of successful candidates in the three years of training:-

	1st Year	2nd Year	3rd Year
Government and Municipal Hospitals	19	9	5
Hadassah (Rothschild) Hospital, Jerusalem	13	8	11
Church Missionary Society Hospitals	8	7	3
English Mission Hospital, Jerusalem	2	4	2
Edinburgh Medical Mission Hospital, Nazareth	3	3	2
Scottish Mission Hospital, Tiberias	3	5	—
TOTAL	48	36	23

Since 1920, 292 nurses have completed courses of training as graduate nurses.

Eleven graduate nurses completed the six months course of training at the Midwives Training School of the Department in Jerusalem

Two graduate nurses undertook a course of training in ophthalmic nursing at the Ophthalmic Hospital of the Order of St. John in Jerusalem, and 3 ophthalmic and 3 school nurses returned to the Hospital for refresher courses in ophthalmic nursing.

HOSPITAL NURSING STAFFS—1931.

Name of Organization	Bed Strength	Matrons	Staff Nurses	Nurses under Training			Number not under Training	Total
				1st Year	2nd Year	3rd Year		
GOVERNMENT HOSPITALS INCLUDING BETHLEHEM MENTAL HOSPITAL AND RAMLEH CASUALTY POST	466	10	24	19	9	5	39	106
VOLUNTARY HOSPITAL ORGANIZATIONS INCLUDING EZRATH NASHIM								
Hadassah Medical Organization (includes Tel-Aviv Township Hospital, 125 beds)	384	4	41	15	7	12	49	128
Church Missionary Society	165	3	6	4	8	4	2	27
Qupat Cholim	110	1	5	—	—	—	8	14
Tutors and Protectors of the Jewish Community in the Holy Land, Amsterdam	53	1	3	—	—	—	12	16
Misgab Ladach	35	1	4	2	1	1	—	9
Bicur Cholim Society	94	2	3	—	—	—	26	31
Italian Hospital, Jerusalem	60	1	13	—	—	—	14	28
British Mission to the Jews	70	1	4	2	3	2	7	19
The Order of St. John of Jerusalem in England	45	3	—	—	—	—	4	7
International Moravian Church, London	60	1	3	—	—	—	4	8
German Deaconness Hospital, Jerusalem	60	1	9	—	1	1	10	22
German Temple Society, Jaffa	20	1	1	—	—	1	1	4
Jerusalem and the East Mission	30	1	1	3	—	1	1	7
Italian Association, Haifa	30	1	7	—	—	—	—	8
St. Charles Congregation, Haifa	30	1	4	—	—	—	7	12
Edinburgh Medical Mission Society	50	1	3	3	2	2	4	15
United Free Church of Scotland	60	1	3	2	3	3	2	14
Ezrath Nashim Women's Society for Insane and Incurable	50	1	2	—	—	—	15	18
French Hospitals	376	4	29	4	3	2	19	61
TOTALS	1782	30	141	35	28	29	185	448

GOVERNMENT AND MUNICIPAL HOSPITALS 1931.

General and Infectious.

Hospital	Bed Strength				Admissions					Deaths	Dis-charges	Daily average number of beds occupied
	General	Isolation	British	Maternity	Moslems	Christians	Jews	Others	Total			
Jerusalem, Government	70	11	6	16	1071	690	112	—	1873	90	1799	79.0
Haifa, "	23	40	7	—	577	316	317	6	1216	61	1159	37.4
Jaffa, Municipal	41	25	7	—	882	177	214	1	1274	67	1186	42.3
Acre, "	24	5	—	—	312	88	9	16	425	20	409	16.1
Gaza, "	20	9	2	2	573	32	—	—	605	20	589	16.5
Beersheba, "	12	—	—	—	284	6	2	—	292	5	295	6.6
Nablus, Watan	48	4	—	4	1110	78	1	1	1190	78	1114	36.4
Tel-Aviv, Township	73	20	—	32	5	1	5012	—	5018	229	4784	148.9
TOTALS	311	114	22	54	4814	1388	5667	24	11893	570	11335	383.2

PRISON SICK DETENTION WARDS.

Jerusalem	14	339	32	66	—	437	—	437	6.1
Acre, General Ward	20	575	25	11	9	620	1	610	15.6
Acre, Tuberculosis Ward	20	14	1	3	—	18	1	21	14.4
Acre, Criminal Lunatics Ward	14	4	2	2	—	8	—	6	11.5
TOTALS	68	932	60	82	9	1083	2	1074	47.6

GOVERNMENT DISPENSARIES AND CLINICS EXCLUSIVE OF OPHTHALMIC AND OTHER SPECIAL CLINICS — 1931.

Location	Total Number of Attendances	New Cases							
		Total new Cases	By Diseases			By Religions			
			Malaria	Eye Diseases	Other Diseases	Moslems	Christians	Jews	Other Religions
Jerusalem Dispensary	18085	10394	13	132	10249	6026	2715	1653	—
Ramallah ”	3168	2894	147	97	2650	2244	650	—	—
Hebron ”	4710	1855	8	175	1672	1738	78	39	—
Beersheba ”	9780	3274	43	—	3231	3141	98	34	1
Jaffa ”	36632	10833	171	1980	8682	9863	576	393	1
Ramleh ”	34295	8146	59	—	8087	6932	1151	63	—
Gaza ”	7523	5914	—	—	5914	5408	506	—	—
Majdal ”	35310	6395	—	1415	4980	6226	169	—	—
Haifa ”	9369	6108	84	176	5848	3268	2046	785	9
Acre ”	6272	3686	569	40	3077	2609	867	117	93
Nablus ”	21361	9496	166	—	9330	9341	140	1	14
Tulkarem ”	12698	2800	198	—	2602	2735	64	1	—
Jenin ”	12915	8371	321	1249	6801	8239	132	—	—
Baisan ”	18511	12865	197	5604	7064	10730	1755	380	—
Safad ”	18069	5510	102	926	4482	4987	493	30	—
Nazareth Medical Inspection Room	1847	1590	—	—	1590	833	729	25	3
Tiberias ” ” ”	1249	618	4	145	469	369	89	159	1
Bethlehem ” ” ”	372	202	—	8	194	95	90	17	—
TOTALS	252166	100951	2082	11947	86922	84784	12348	3697	122

VOLUNTARY HOSPITALS, 1931

Name and Location of Hospital.	Bed Strength	Admissions.					Deaths.	Discharges.	Daily average in Hospital.	Remarks.
		Moslems.	Christians.	Jews.	Other Religions.	Totals.				
JERUSALEM										
Ophthalmic Hospital of the Order of St. John of Jerusalem	45	1003	159	9	—	1171	—	1156	33.4	
St. Louis (French) Hospital	150	568	707	8	—	1283	40	1230	41.7	
Italian Hospital	60	266	154	9	—	429	15	406	14.0	
Hadassah (Rothschild) Hospital	135	4	5	3474	—	3483	248	3226	129.9	
English (Church Mission to Jews) Hospital*	70	13	52	1332	—	1397	11	1393	46.1	*Closed 25/3 to 15/4 and 11/9 to 6/10
Shaare Zedek Hospital	53	9	12	981	—	1002	44	957	30.8	
Mizgab Ladach Hospital	35	—	—	591	—	591	18	592	17.6	
Bicur Cholim Hospital	74	2	3	1600	—	1605	71	1565	59.9	
Bicur Cholim Hospital (Old City)	20	—	—	20	—	20	14	6	19.3	
Leper Hospital (International Moravian Society)	60	3	—	2	—	5	—	3	19.7	
Deaconness (German) Hospital	60	560	734	28	—	1322	57	1280	49.4	
Convalescent Home (Qupat Cholim)*	60	—	—	861	—	861	—	934	56.0	*Closed 22/3 to 22/4
BETHLEHEM										
French Hospital	80	267	666	5	—	938	40	892	32.7	
HEBRON										
Jerusalem and the East Mission Hospital	30	609	12	1	—	622	22	606	11.8	
JAFFA										
Church Missionary Society Hospital	57	—	—	—	—	1015	46	964	27.5	
German Hospital	20	24	90	6	6	126	4	121	3.1	
French Hospital	90	981	207	60	—	1248	59	1202	38.0	

VOLUNTARY HOSPITALS 1931 *(continued)*

Name and Location of Hospital	Bed Strength	Admissions					Deaths	Discharges	Daily Average in Hospital	Remarks
		Moslems	Christians	Jews	Other Religions	Totals				
GAZA										
Church Missionary Society Hospital	63	—	—	—	—	560	25	540	19.3	
HAIFA										
Hadassah Hospital	30	8	7	1825	—	1840	72	1795	48.8	
German Hospital	30	243	269	344	11	867	25	846	22.8	
Italian Surgical Hospital	30	99	61	93	—	253	3	243	13.1	Closed 1/1 to 28/2
NAZARETH										
Edinburgh Medical Mission Hospital	50	909	310	7	—	1226	77	1160	34.8	
French (Soeurs de Charité) Hospital	56	258	231	2	—	491	23	460	17.0	
AFFULA										
Qupat Cholim Hospital	50	4	1	1471	—	1476	10	1468	47.7	
NABLUS										
Church Missionary Society Hospital	45	—	—	—	—	712	17	698	16.6	
TIBERIAS										
United Free Church of Scotland Hospital	60	—	—	—	—	960	31	921	53.2	Closed 22/6 to 30/9
Hadassah Hospital	36	3	—	77	—	80	2	98	14.9	Closed permanently 9-3-31
SAFAD										
Hadassah Hospital	58	32	7	336	—	375	26	348	44.1	
TOTALS	1607	5865	3687	13142	17	25958	1000	25110	963.2	

VOLUNTARY DISPENSARIES AND CLINICS — 1931.

Name of Dispensary or Clinic	Total Attendances	New Patients								Remarks
		Totals	By Disease			By Religions				
			Malaria	Eye Disease	Other Diseases	Moslems	Christians	Jews	Other Religions	
JERUSALEM										
Shaare Zedek Hospital	19572	3333	—	—	3333	287	52	2994	—	
Misgab Ladach Hospital	18485	9808	—	1232	8576	180	14	9614	—	
St. Louis (French) Hospital	31176	14595	191	2898	11506	7181	6090	1324	—	
Ophthalmic Hospital of the Order of St. John	75423	18984	—	18984	—	13793	3560	1631	—	
Rothschild (Hadassah) Hospital	87180	18727	4	3133	15590	153	215	18359	—	
Church Mission to Jews Hospital	34164	14862	2	3602	11258	858	766	13238	—	
Armenian Convent Dispensary	1313	368	3	16	349	—	368	—	—	
Italian Hospital	6060	2934	—	—	2934	1605	884	445	—	
New Bicur Cholim Hospital	15372	4662	—	—	4662	—	—	4662	—	
Old Bicur Cholim Hospital	2900	2900	—	—	2900	—	—	2900	—	
Qupat Cholim Dispensary	47092	23197	—	238	22959	75	—	23122	—	
Moslem Polyclinic	10015	9265	93	150	9022	9070	104	91	—	
German (Deaconness) Hospital	20403	11622	—	396	11226	5736	2988	2898	—	
RAMALLAH										
Soeurs de St. Joseph (French) Dispensary	2710	2497	1	1566	930	1111	1386	—	—	
BETHLEHEM										
French Hospital	18108	4279	—	2370	1909	2607	1672	—	—	
HEBRON										
St. Lukes (Jerusalem and the East Dispensary)	8488	3792	234	960	2598	3645	137	10	—	
Moslem Polyclinic	1913	1615	—	147	1468	1615	—	—	—	Opened 1-7-31.

VOLUNTARY DISPENSARIES AND CLINICS 1931 *(Continued)*

Name of Dispensary or Clinic	Total Attendances	New Patients								Remarks
			By Disease			By Religions				
		Totals	Malaria	Eye Disease	Other Diseases	Moslems	Christians	Jews	Other Religions	
JAFFA										
Hadassah Hospital	66850	13389	45	1966	11378	2	—	13387	—	
Church Missionary Society Hospital	14172	7981	340	169	7472	—	—	—	—	
French Hospital	35460	3640	36	1565	2039	3640	—	—	—	
St. George's Dispensary	4494	2793	—	32	2761	1171	1617	5	—	
Agudath Israel Dispensary	11957	4138	11	924	3203	1567	9	2558	4	
Church of Scotland Dispensary	3807	2527	29	—	2498	1082	20	1425	—	Closed from 18.7 to 23.9
Jewish Medical Organization Shenkin Street	11897	2340	—	450	1890	—	—	2340	—	
Jewish Medical Organization, Yehuda Halevy Street	35613	14838	—	1741	13097	—	—	14838	—	
Qupat Cholim Dispensary	242940	59684	221	8048	51415	85	—	59599	—	
GAZA										
Church Missionary Society Hospital	5824	3274	87	138	3049	2991	283	—	—	
HAIFA										
Italian Hospital	7206	3494	153	2	3339	1290	427	1709	68	10 months only
German Hospital	3473	2866	—	537	2329	1275	1252	317	22	
Hadassah Hospital	36735	8327	5	2180	6142	85	36	8206	—	
Qupat Cholim Dispensary	86318	24455	6	2129	22320	17	14	24424	—	
British Mission to Jews Society	6016	1660	16	82	1562	207	220	1230	3	6 months only
Soeurs de Charité (French) Dispensary	14638	3142	894	536	1712	1928	1152	42	20	
Moslem Medical Clinic	7538	5810	364	193	5253	5620	179	11	—	
NAZARETH										
Edinburgh Medical Mission Hospital	9312	4989	462	1041	3486	3264	1709	16	—	
French Hospital	11955	10397	563	1557	8277	5758	4637	2	—	
Austrian Hospice Dispensary	4964	4964	478	775	3711	3013	1951	—	—	
NABLUS										
Church Missionary Society Hospital	8690	3606	132	489	2985	—	—	—	—	
TIBERIAS										
Scots Mission Hospital	16375	3538	210	415	2913	—	—	—	—	Closed July, Aug. and Sept.
Hadassah Dispensary	56637	8579	45	4374	4160	884	73	7622	—	
SAFAD										
Hadassah Hospital	22164	1927	4	83	1840	91	9	1827	—	
TOTALS	1,125,409	349,798	4629	65,118	280,051	81,886	31,824	220,846	117	

TABLE OF PATIENTS IN GOVERNMENT, MUNICIPAL AND VOLUNTARY HOSPITALS — 1931.

Name of Hospital	British		Other Foreigners			Palestinians			Totals		
	Jews	Christians and others	Jews	Moslems	Christians and others	Jews	Moslems	Christians and others	Jews	Moslems	Christians and others
Misgab Ladach, Jerusalem	1	—	115	—	—	475	—	—	591	—	—
St. Louis (French), Jerusalem	—	2	—	—	—	8	568	705	8	568	707
Ophthalmic, Order of St. John, Jerusalem	—	—	—	—	—	9	1003	159	9	1003	159
Rothschild (Hadassah), Jerusalem	25	—	952	—	4	2497	4	1	3474	4	5
British Mission to the Jews, Jerusalem	20	32	65	—	8	1247	13	12	1332	13	52
Ezrath Nashim, Jerusalem	1	—	21	—	—	12	—	—	34	—	—
Shaare Zedek, Jerusalem	15	1	243	—	1	723	9	10	981	9	12
Bicur Cholim (New), Jerusalem	2	—	70	—	—	1528	2	3	1600	2	3
Bicur Cholim (Old), Jerusalem	1	—	10	—	—	9	—	—	20	—	—
Italian, Jerusalem	—	—	—	—	—	9	266	154	9	266	154
German (Deaconness), Jerusalem	—	33	6	28	244	22	532	457	28	560	734
Convalescent Home, Qupat Cholim, Motza	—	—	—	—	—	961	—	—	961	—	—
French, Bethlehem	—	—	1	—	37	4	267	629	5	267	666
St. Lukes, Hebron	—	1	—	—	—	1	609	11	1	609	12
Church Missionary Society, Jaffa	—	8	—	—	—	←	1007*	→	←	1007*	→ 8
French, Jaffa	—	—	21	24	35	39	957	172	60	981	207
German, Jaffa	—	—	—	—	86	6	24	10	6	24	96
Church Missionary Society, Gaza	—	4	—	—	—	—	529	27	--	529	31
German, Haifa	1	7	186	10	115	157	233	158	344	243	280
Italian, Haifa	—	2	2	2	10	91	97	49	93	99	61
Hadassah, Haifa	13	—	723	—	2	1089	8	5	1825	8	7
Edinburgh Medical Mission Society, Nazareth	—	48	—	—	2	7	909	260	7	909	310
French, Nazareth	—	1	—	5	18	2	253	212	2	258	231
Qupat Cholim, Affula	—	—	435	—	—	1036	4	1	1471	4	1
Scottish Mission, Tiberias	—	15	2	70	13	339	416	105	341	486	133
Hadassah, Safad	—	5	—	—	—	336	32	2	336	32	7
Church Missionary Society, Nablus	—	3	—	—	—	—	638	71	—	638	74
Total Voluntary Hospitals	79	162	2852	139	575	10607	7373	3213	13538	7512	3950
						←	plus 1007*	→	←	plus 1007*	→
Government General, Jerusalem	4	184	1	24	20	105	1047	457	110	1071	661
Government British Section, Jerusalem	2	29	—	—	—	—	—	—	2	—	29
Government, Haifa	1	103	92	3	5	224	574	214	317	577	322
Municipal, Beersheba	—	—	—	1	—	2	285	6	2	286	6
Municipal, Jaffa	—	98	26	36	9	188	846	71	214	882	178
Municipal, Gaza	—	10	—	10	—	—	563	22	—	573	32
Township, Tel-Aviv	2	1	2610	—	—	2400	5	—	5012	5	1
Municipal, Acre	—	—	4	3	1	5	309	103	9	312	104
Watan, Nablus	—	38	—	7	1	1	1103	40	1	1110	79
Government Mental, Bethlehem	—	1	6	—	1	6	2	10	12	2	12

Name of Hospital	British		Other Foreigners			Palestinians			Totals		
	Jews	Christians and others	Jews	Moslems	Christians and others	Jews	Moslems	Christians and others	Jews	Moslems	Christians and others
Misgab Ladach, Jerusalem	1	—	115	—	—	475	—	—	591	—	—
St. Louis (French), Jerusalem	—	2	—	—	—	8	568	705	8	568	707
Ophthalmic, Order of St. John, Jerusalem	—	—	—	—	—	9	1003	159	9	1003	159
Rothschild (Hadassah), Jerusalem	25	—	952	—	4	2497	4	1	3474	4	5
British Mission to the Jews, Jerusalem	20	32	65	—	8	1247	13	12	1332	13	52
Ezrath Nashim, Jerusalem	1	—	21	—	—	12	—	—	34	—	—
Shaare Zedek, Jerusalem	15	1	243	—	1	723	9	10	981	9	12
Bicur Cholim (New), Jerusalem	2	—	70	—	—	1528	2	3	1600	2	3
Bicur Cholim (Old), Jerusalem	1	—	10	—	—	9	—	—	20	—	—
Italian, Jerusalem	—	—	—	—	—	9	266	154	9	266	154
German (Deaconness), Jerusalem	—	33	6	28	244	22	532	457	28	560	734
Convalescent Home, Qupat Cholim, Motza	—	—	—	—	—	961	—	—	961	—	—
French, Bethlehem	—	—	1	—	37	4	267	629	5	267	666
St. Lukes, Hebron	—	1	—	—	—	1	609	11	1	609	12
Church Missionary Society, Jaffa	—	8	—	—	—	⟵	1007*	⟶	⟵	1007*	⟶ 8
French, Jaffa	—	—	21	24	35	39	957	172	60	981	207
German, Jaffa	—	—	—	—	86	6	24	10	6	24	96
Church Missionary Society, Gaza	—	4	—	—	—	—	529	27	--	529	31
German, Haifa	1	7	186	10	115	157	233	158	344	243	280
Italian, Haifa	—	2	2	2	10	91	97	49	93	99	61
Hadassah, Haifa	13	—	723	—	2	1089	8	5	1825	8	7
Edinburgh Medical Mission Society, Nazareth	—	48	—	—	2	7	909	260	7	909	310
French, Nazareth	—	1	—	5	18	2	253	212	2	258	231
Qupat Cholim, Affula	—	—	435	—	—	1036	4	1	1471	4	1
Scottish Mission, Tiberias	—	15	2	70	13	339	416	105	341	486	133
Hadassah, Safad	—	5	—	—	—	336	32	2	336	32	7
Church Missionary Society, Nablus	—	3	—	—	—	—	638	71	—	638	74
Total Voluntary Hospitals	79	162	2852	139	575	10607	7373	3213	13538	7512	3950
						⟵	plus 1007*	⟶	⟵	plus 1007*	⟶
Government General, Jerusalem	4	184	1	24	20	105	1047	457	110	1071	661
Government British Section, Jerusalem	2	29	—	—	—	—	—	—	2	—	29
Government, Haifa	1	103	92	3	5	224	574	214	317	577	322
Municipal, Beersheba	—	—	—	1	—	2	285	6	2	286	6
Municipal, Jaffa	—	98	26	36	9	188	846	71	214	882	178
Municipal, Gaza	—	10	—	10	—	—	563	22	—	573	32
Township, Tel-Aviv	2	1	2610	—	—	2400	5	—	5012	5	1
Municipal, Acre	—	—	4	3	1	5	309	103	9	312	104
Watan, Nablus	—	38	—	7	1	1	1103	40	1	1110	79
Government Mental, Bethlehem	—	1	6	—	1	6	2	10	12	2	12
Total Government and Municipal Hospitals	9	464	2739	84	37	2931	4734	923	5679	4818	1424
TOTAL ALL HOSPITALS	88	626	5591	223	612	13538	12107	4136	19217	12330	5374
						⟵	plus 1007*	⟶	⟵	plus 1007*	⟶

* Total patients treated — classification by religions not available.

7. Maternity and Child Welfare.

The Princess Mary Maternity Wards at the Government Hospital, Jerusalem, provide accommodation for 22 cases. During the year, 423 cases were admitted compared with 402 in 1930. 379 babies were born and 63 obstetrical operations were performed. The work of the Centre continues to grow steadily in popularity as may be seen from the following comparative table.

Year	1926	1927	1928	1929	1930	1931
Number of cases admitted	314	363	305	324	402	423

The maternal mortality was 7.9 per 1000 live births.

The Midwives Training School is centred on the Princess Mary Maternity Wards and the District Maternity Service in Jerusalem where the pupils are taught to deal with confinements in poor homes and given a course of instruction in ante-natal and infant welfare work and home visiting.

Eleven graduate nurses and six pupil midwives completed the course of training and examination and became certified midwives under the Midwives Ordinance.

The District Maternity Service attended to 145 deliveries during the year. There were 207 cases accepted for attention at the ante-natal clinic. The attendances at this clinic were 1605. A gynaecological clinic also forms part of this service. A Medical Officer attends once a week and patients come daily for treatment. The attendances at this clinic totalled 4,337. There were 477 infants on the registers of the Infant Welfare Centre at the end of the year. Of these 221 were new acceptances during the year. The attendances of infants to the clinic were 10,465, and 4,311 home visits were paid by the nurses of the Centre. Informal talks and demonstrations were given to mothers at the clinic. To the most necessitous cases milk is issued. Mothers are taught how to make garments and a certain amount of clothing for infants is issued to the very poor from gifts of materials given to the centre by interested visitors. As the centre works in the poorest section of the Old City, there are many very real claims for help of this nature. The thanks of the Department are due to a number of ladies who personally assist in the social side of the work and have also made gifts of clothing or materials.

The Superintendent of Midwives exercises supervision over all practising midwives in the area. Assistance is given in difficult cases which they meet in their practice. Courses of instruction are given to such untrained "dayas" as are still permitted to continue in practice under the Midwives Ordinance.

The District Maternity and Infant Welfare Service in Nablus which is conducted on similar lines to that in Jerusalem under a Superintendent, has continued to make very satisfactory progress. The Centre was moved to more suitable premises in the early part of the year. A feature of the work of this centre is the extension of supervision of the Superintendent to the work of "dayas" in neighbouring villages.

The Haifa Social Service Committee maintains an Infant Welfare Centre in Haifa which continues to carry on very useful work under the able direction and supervision of Dr. Cotching. The centre moved to new premises during the year. Dr. Cotching has written a very useful pamphlet for the guidance of literate mothers and Infant Welfare nurses. The pamphlet has been published by the Government in Arabic and is available for purchase by the public. A similar pamphlet in Hebrew has been published by the Hadassah Medical Organization.

The number of Government Infant Welfare Centres is 7. In addition the Department participates with local authorities or voluntary committees in the administration or maintenance of another 10 centres.

Apart from this, there is the Hadassah Infant Welfare Service for the Jewish community which maintains 22 centres in various localities of the country. There are also 5 centres maintained wholly by voluntary workers.

The number of infants on the registers of all centres amounts to 19,883. New registrations during the year were 9,376. The total births each year in the country is approximately 40,000. A considerable expansion of work is still required in the Arab community.

The infant mortality rate for the year was 170.10 compared with 154.28 in 1930 and 186 in 1928 and 1929. The lowest rate is found in the Jewish Community, 81.6, and the highest in the Moslem, 187.

INFANT WELFARE, 1931.

Location and Supporting Organization	Number of infants cared for by Centre	Attendances of infants at Centre	Visits by nurses to to infants at home	Opened in
Government and Municipal.				
Jerusalem, Government	460	10465	4311	1925
Ramleh, "	1290	9932	1659	1926
Nablus "	1029	5810	4140	1926
Acre "	428	1509	1795	1926
Gaza "	775	3421	3624	1927
Hebron A. "	294	2855	1484	1927
Hebron B. " and Supreme	337	4354	1384	1927
Hebron C. " Moslem Council	70	1912	526	1931
Jifna, Government and Local Community	183	6448	2443	1928
Halhoul " " "	249	4287	1586	1929
Baisan, Government	285	1506	3374	1930
Jaffa "	296	5526	2286	1930
Ramallah, Municipal	257	3700	3090	1925
Bethlehem, "	214	4625	2011	1926
Beersheba, "	120	129	1263	1929
	6287	66479	34976	
Hadassah Medical Organization.				
Jerusalem, Station A.	668	7213	3133	1922
" " B.	1664	14817	4085	1924
" " C.	1642	12982	4200	1923
" " F.	368	3745	1079	1925
" " G.	96	801	255	1928
Tel Aviv, Station A.	938	10998	2335	1927
" " B.	340	4424	544	1927
Haifa, Station A.	704	10017	781	1923
" " B.	727	8096	1409	1926
" " C.	144	3356	460	1926
" " D.	62	943	71	1927
Rehovoth	178	2284	422	1924
Shaaraim	147	1862	1375	1926
Rishon-le-Tsiyon	122	1253	493	1928
Shevat Tsiyon	86	863	516	1928
Petah Tiqva	472	4767	1796	1924
Mahne Yehuda	126	1082	752	1925
Tiberias	602	5880	1766	1924
Yavniel	59	1271	548	1928
Safad	143	1079	139	1930
Nes-Tsiyona	77	752	226	1930
Kfar Sava	114	1089	62	1931
	9479	99574	26447	
Local Committees.				
Jerusalem, American Colony Aid Assn.	600	8018	1331	1927
Jaffa, Committee of Ladies	364	5371	2048	1926
Haifa, Social Service and Infant Welfare Association	888	6798	7781	1925
Ain-Karim, Miss Carey's Centre	136	3110	1460	1931
Women's International Zionist Organization				
Tel-Aviv, Carmel Street	888	13804	4048	1923
" Nehemya Street	543	12027	2340	1922
" Shabazi Street	698	11442	5043	1926
	4117	60570	24051	
GRAND TOTALS	19883	226623	85474	

8. Ophthalmic Service.

Six special ophthalmic clinics are maintained by the Department in Beersheba, Gaza Ramleh, Nablus, Tulkarem and Acre. These are centres in areas where epidemics of acute ophthalmia are most common and where the burden of eye disease and preventable blindness is most heavy. These clinics are staffed by personnel who have undergone special courses of instruction in the Ophthalmic Hospital of the Order of St. John in Jerusalem and who return periodically to the hospital for refresher courses.

The work of the Ophthalmic Clinics continues to increase. There were 19,353 new cases compared with 16,894 in 1930. Comparative figures for the past five years are as follows:—

Year	Attendances	New Patients
1927	108,437	15,928
1928	147,951	18,576
1929	146,135	14,271
1930	162,207	16,894
1931	170,434	19,303

The incidence per centum of acute conjunctivitis amongst patients attending was 44%, slightly less than last year. A welcome reduction is noted in the number of cases of acute conjunctivitis reporting for treatment with corneal ulceration already established. This was 4% compared with 7% in 1930.

In addition to the ophthalmic treatment performed at these special clinics, 12,973 cases were treated for eye disease at other Government dispensaries and 78,297 at dispensaries and clinics of non-Government institutions and organizations.

GOVERNMENT OPHTHALMIC CLINICS, 1931

Location	Total Attendances	Number of New Patients	Number Admitted to Hospital	Operations		Classification of Conditions found in New Patients											
				Trichiasis	Other Conditions	Clear Lids	Acute Conjunctivitis	Acute Conjunctivitis with Corneal Ulceration	Trachoma	Trachoma with Corneal Ulceration	Corneal Ulcers other than above	Corneal Conditions other than Ulcers	Endophthalmia	Varia	Blind in both Eyes	Blind in one Eye
Beersheba	10514	728	20	14	95	309	307	6	419	66	6	100	29	72	6	53
Gaza	48848	2983	50	85	54	927	1311	66	2056	124	12	300	279	438	50	96
Ramleh	34823	4433	2	110	209	472	1209	72	3961	642	94	628	396	1586	37	327
Acre	23006	1476	36	57	63	591	808	8	885	62	45	54	40	393	7	26
Nablus	34400	5198	24	64	184	2120	2667	140	3078	356	55	363	155	760	13	119
Tulkarem	18843	4535	—	111	227	430	2277	95	4105	1206	18	601	166	1559	26	186
TOTALS	170434	19353	132	441	832	4849	8579	387	14504	2456	230	2046	1065	4808	139	807

9. Lunacy.

The situation as regards institutional care of acute cases of mental disease remains unsatisfactory. By construction of new dining rooms external to the main building of the Government Mental Hospital, and minor internal alterations, it was possible to increase the bed strength by 14 patients.

During the year 26 new cases were admitted and 8 discharged improved or recovered. There were 34 admissions to the Ezrath Nashim Home which is maintained by voluntary subscriptions. This institution is experiencing great difficulty in maintaining itself owing to reduction in revenue. A proposal to extend Government accommodation in Bethlehem by taking over the Swedish Hospital building was under consideration at the end of the year. Thirty pauper patients at present in the Ezrath Nashim Hospital will be transferred to the Swedish Hospital building and another 20 patients at present awaiting admission to hospital will be received in the new premises. The proposal will enable the Ezrath Nashim Society to restrict admissions to paying patients and thus relieve in a small degree its present difficult financial condition.

At the end of the year, the following was the situation as regards patients in institutions and awaiting admission.

	Arabs	Jews	Total
Government Mental Hospital	46	34	80
Ezrath Nashim Home	—	71	71
Awaiting Admission	66	50	116

During the year, 4 patients died in the Government Mental Hospital, and 3 in the Ezrath Nashim Home.

The classification of patients admitted to hospitals during the year is as follows:—

	Govt. Mental Hospital	Ezrath Nashim Home
Hysteria Major	1	—
Psychasthenia	—	1
Mania, Depressive Group	4	5
Melancholic States		3
Paranoia	—	2
Dementia Praecox	15	19
Paraphrenia	—	1
Epileptic Dementia	1	—
Drug Insanities (Morphin-Hashish)	2	—
General Paralysis	2	1
Other Organic Insanities and Idiocy	1	2
	26	34

Hospital	Bed Strength	Admissions				Deaths	Discharges	Daily Average in Hospital
		Moslems	Christians	Jews	Others			
Government Mental Hospital	81	2	12	12	—	4	8	72.2
Ezrath Nashim Home	50	—	—	34	—	3	40	78.3

MENTAL HOSPITALS.

General Statistical Tables.

		Number Admitted during 1931	Daily Average Number during 1931	Number of Attendants				Discharged			Number of Patients who Died during 1931	Average stay of those		
				Resident		Non-Resident								
				Employed in Attendance on the Patients	Employed as Servants or only partially as Attendants	Employed in Attendance on the Patients	Employed as Servants or only patially as Attendants	Cured	Relieved	Not improved		Died in 1931	Discharged in 1931	Remaining at end of 1931
												Days	Days	Days
Government Mental Hospital, Bethlehem	M.	17	41.6	12	4	—	4	1	1	1	3	999	156	1427
	F.	9	30.6	12	4	—	4	2	—	3	1	14	152	1515
Ezrath Nashim Home, Jerusalem	M.	13	28.50	4	1	2	2	3	9	4	2	199	304	1973
	F.	21	49.25	4	—	10	6	4	14	6	1	152	713	1800
TOTALS		60	—	31	9	12	16	10	24	14	7	1325	1325	6715

10. School Medical Service.

The number of school children in Government and non-Government schools is given in the following table:—

	Number of Schools	Number of Boys	Number of Girls	Number of Teachers
Govt. Schools in Towns	53	6195	4273	410
Govt. Schools in Villages	255	13151	669	334
Non-Government Schools	695	32166	25702	3025
	1003	51512	30702	3769

While all schools in the country are subject to periodic sanitary inspection, and no new school is permitted to open until its arrangements from this point of view have been approved by the Department, the School Medical Service proper is confined at present to Government schools and to non-Government schools which apply for the service. About 25,000 children are under supervision.

The expansion and development of this branch of work is necessary so that the basic service may be extended in time to all schools which are recognised by the Government.

Progress in the direction of establishing schools in permanent and up-to-date premises is slow, but at the instigation of Medical Officers many improvements have been secured in existing schools and several new schools have been constructed on approved lines. A satisfactory feature has been the construction of suitable premises in a considerable number of Jewish and Arab villages. In towns owing to the larger capital expenditure involved, progress in this direction is less rapid but a number of commendable projects are in view, and a few have been completed.

The work of the School Medical Service is indicated in the following table: —

	Town Schools	Village Schools	Total
Lectures to Teachers.			
Number of Hygiene Lectures by Medical Officers to Teachers	23	35	58
Number of Teachers attending Lectures	127	102	229
Medical Inspection of Pupils.			
Number of children medically examined	8852	5270	14122
” with trachoma	3694	3736	7430
” with other eye disease	434	178	612
” with defective vision	150	101	251
” verminous head or body	180	176	356
” 4 or more teeth decayed	46	20	66
” with enlarged spleen	16	160	176
” with heart disease	16	1	17
” with lung affections	6	2	8
” tuberculous disease	1	1	2
” mentally defective	—	2	2
” vaccinated against smallpox	265	24	289
Ophthalmic Treatment.			
Number of attendances of children for treatment of trachoma etc. by teacher or school nurse	801,975	1,521,416	2,323,391

The precentage of trachoma in children medically examined was 41% in town schools and 70% in village schools compared with 40% and 68% in 1930.

The school nurses of the Department who are all specially trained in ophthalmic work carry out ophthalmic treatment prescribed by the School Medical Officers.

There is a steady improvement in cleanliness. In this direction, the cooperation of the teaching staff is most valuable. The spleen rate in school children decreased from 4% in 1930 to 1% in the current year. 1773 children were treated for malaria.

The School Medical Service in Jewish Agency Schools was as in previous years conducted by the Hadassah Medical Organization. There were 27,079 children under supervision. The number of school nurses was increased from 10 to 12. Mental hygiene clinics for defective children were continued in Jerusalem and a new clinic established in Tel-Aviv. A commencement in dental treatment was made through the agency of the Clara Wachtel Dental clinic in Jerusalem, and a clinic maintained by the Jewish Dental Society in Tel-Aviv. Classes for physical corrective exercises were commenced in the Straus Health Centre in Jerusalem.

A special ophthalmic service of the Hadassah Medical Organization employing 25 non-graduate nurses attends to abnormal eye conditions found in children at the Jewish Agency Schools and carries out routine treatment required.

11. Railway Medical Service.

(a) Introductory and Personnel.

The control of the Medical and Sanitary Services of the Palestine Railways became the duty of the Senior Medical Officer, Railways, stationed at Haifa as from October, 1930. Apart from this, the personnel for the year 1931 remained as in previous years and consisted of:—

A Medical Officer stationed at Kantara and in charge of the Sinai Military Railway to Rafa and also in charge of the Quarantine and Immigration Medical Control at Kantara.

Railway Medical Orderlies, five in number.

Clerk-Dispenser attached to the office of the S.M.O Railways at Haifa.

In general, the routine of regular inspections by the Medical Orderlies of their respective sections of Line with Monthly Reports to the S.M.O's office has proceeded smoothly and enabled the S.M.O. to keep in touch with the Medical and Sanitary requirements of the Railways as they came to light and to take such action as was necessary.

Occasional inspections of the Line have been made by the S.M.O. Railways, the whole Line from Haifa to Kantara having been surveyed on three occasions during the year.

(b) First Aid Equipment.

The First Aid Equipment has been maintained as in other years, the whole equipment being reported on monthly to the S.M.O. and deficiencies replenished as required.

(c) Incidence of Sickness.

The total number of Railway personnel reporting sick to Medical Officer's Clinics amounts to 3008 contributed from various Departments of the Railway Organization as follows:—

District Engineer	897
Running Section	825
Superintendent of the Line	614
Chief Mechanical Engineer	456
Accounts	115
Stores	50
Ways and Works	30
General Manager	12

The total time "Off Duty" amounts to 7620 days, giving an average per man sick of 2.5 days.

The high figure for the Running Section needs some comment. The personnel in this branch undergo the most stringent physical examination at time of recruitment and by ordinary standards they should be "fitter" than those of any other Department. On the other hand their work is exacting, in that the men concerned are more or less exposed to the weather and that sometimes long hours are expected of them, though I am informed that the total hours per week never exceeds 56.

(d) New Railway Workshops, Kishon Site, Haifa.

These workshops were being constructed throughout the year and are expected to be ready for use about August, 1932.

A survey of mosquito breeding in the neighbourhood was started in the summer of 1931. Culex larvae were found in large numbers in numerous wells in the sand dunes to the west of the workshops. North of the workshops *A. elutus* was found in large numbers within a distance of about 5 kilometres breeding from swamps bordering the Haifa Bay Development Area.

The Railway Medical Orderlies' Casualty Station and Dressing Hut will be moved to the New Railway Workshops, as soon as the bulk of the workmen are employed in the new site.

(e) Kantara, and Sinai Military Railways.

The unsatisfactory state of the water distribution on the S.M.R. and at Kantara has been the subject of a good deal of correspondence.

The plant at Kantara is the original one installed during the War. Under careful supervision it still serves its purpose fairly well and after chlorination of the water, samples taken from reservoirs on the East bank of the Canal give good results.

12. Police and Frontier Force Medical Arrangements.

The general arrangements remain as in previous years. There were 329 admission to hospital from the British Section of the Police Force with an average stay in hospital of 8 days, and 339 admissions from the Palestinian section with 6.6 days average stay in hospital.

142 cases were sanctioned dental treatment compared with 192 in 1930. The attention of Medical Examiners of British recruits was drawn to the necessity of rejecting candidates whose dental condition was poor.

A programme of improvement for the British Police Depot barracks at Mount Scopus was prepared and part completed during the year. A new kitchen and mess, new stables and a general drainage scheme for the camp are included in this schedule of works.

The health of the Trans-Jordan Frontier Force was satisfactory. Admissions to hospital were 472 compared with 496 in 1931. With the improvement of equipment of the operating theatre at Zerka Hospital, fewer cases were transferred to other hospitals for surgical treatment.

51 cases of malaria occurred of which 13 were primary and 38 relapses. This compares favourably with 70 in 1930 of which 27 were primary cases.

Improvements were completed to the water supply at Zerka Camp and the constructfon of the barrack accommodation at Jisr-el-Majamie camp completed.

13. Prison Medical Service.

The average prison population was 2535 including 65 boys in the Reformatory School. There were 347 admissions to Government and Municipal hospitals with an average of 15 days' treatment each. There were 18 admissions to the Tuberculosis Ward of Acre Prison and 21 discharges of which 10 were discharged as cured. There was one death of pulmonary tuberculosis.

There were 8 admissions to the Criminal Lunatic Section of the Prison Hospital and 6 discharges. Of these 3 returned to prison and 3 were discharged under surveillance.

Improvement of the accommodation for the prison workshops at Acre has been strongly recommended and a scheme of construction prepared for execution in 1932. The projected closure of Acre Municipal Hospital necessitates the provision of a hospital ward in the prison itself. Plans have been prepared and the work will be put in hand during 1932.

14. Training in First Aid.

Medical Officers of the Department give courses of instruction in first aid to employees of the Department, Police, and Railway personnel. The course followed is that prescribed by the Order of St. John under whose auspices and rules the examinations are conducted.

Special attention is being given to the training of Palestine and British Police in order that the Force will be able to furnish effective first aid assistance in cases of accident. As a commencement, particular emphasis is being placed by the Commandant of Police on the necessity for recruits at the British Police Depot and the Palestine Police Training School receiving a full course of instruction in first aid as part of the syllabus of training.

A complete review of the general first aid and ambulance arrangements in the country was made during the year, and concrete schemes prepared in all districts by the Senior Medical Officers concerned.

The results of examinations held during the year are as follows:—

Department	Number of Candidates	Certificates		
		Passed	Failed	Not Examined
Palestine Police	119	42	75	2
Palestine Railways	—	—	—	—
Dept. of Health personnel	19	19	—	—

15. The Medical Commission.

The Central Medical Board carried out 35 examinations during the year of which 15 were to determine the physical fitness of candidates for service—12 in connection with applications for sick leave, 6 for invaliding from the service, and 2 for special treatment and estimation of disability.

The 18 District Medical Boards carried out 3280 medical examinations. A very large proportion of these examinations were of candidates for employment in the Police Force.

As there is no dearth at present of suitable recruits for the Force, an arrangement was made with the Department of Police that only candidates who are ascertained by the recruiting Police Officer to attain the prescribed standards of height and chest measurement would be sent forward to District Medical Boards for medical examination in future. Of Police recruits examined during the year, 27% were rejected as not attaining the physical standards prescribed.

EXAMINATIONS BY MEDICAL BOARDS — 1931.

	Examinations as to Fitness for Service												Special miscellaneous examinations	TOTALS
	Government Officials and Employees other than Police				Police									
					Men serving				Recruits					
	Fit for permanent service	Fit for temporary service only	Unfit for any service	Total	Fit for permanent service	Fit for temporary service only	Unfit for any service	Total	Fit for service	Unfit for service	Total			
Central Medical Board	5	2	5	12	—	—	4	4	—	—	—		19	35
Jerusalem District Medical Boards	142	7	8	157	54	—	14	68	359	95	454		562	1241
Jaffa District Medical Boards	88	—	6	94	58	—	4	62	293	158	451		251	858
Haifa District Medical Boards	107	4	30	141	47	—	15	62	249	139	388		174	765
Samaria District Medical Boards	49	—	—	49	40	—	4	44	270	41	311		12	416
TOTALS	391	13	49	453	199	—	41	240	1171	433	1604		1018	3315

16. Medico-legal Examinations and Reports.

There was a slight decrease in the amount of work required of Medical Officers for medico-legal purposes.

The number of investigations made was 3903 compared with 4472 in 1930. Evidence was given in Courts on 801 occasions compared with 948 occasions last year. 396 post-mortem examinations were performed and reports submitted.

17. The Practice of Medicine, Pharmacy, Dentistry and Midwifery.

At the end of the year there were 667 doctors, 190 pharmacists, 218 dentists and 345 midwives licensed to practise in Palestine.

During the year, the new licenses granted were 28 to doctors, 16 to pharmacists, 16 to dentists, and 22 to midwives, but owing to departures from the country, deaths and other causes, the number of practising members of the various professions was only increased as follows:—

Doctors 18, Pharmacists 10, Dentists 8, Midwives 13.

The most welcome increase at present is that of midwives.

Three new pharmacies were opened during the year and two were closed. The total number conducting business at the end of the year was 111.

Revised regulations regarding the licensing, maintenance, arrangement and upkeep of pharmacies, establishments of wholesale dealers in drugs and poisons, and establishments of dealers in simple drugs were issued during the year.

A satisfactory standard of equipment, arrangement and maintenance of these establishments has been attained and compares very favourably with other European countries. Continuous inspection is, however, necessary to maintain this very necessary standard.

This work is under the supervision of a qualified pharmacist who combines these duties with the supervision of the trade in dangerous drugs as required under the International Opium Convention. Samples of drugs from stocks and prescribed medicines dispensed are taken regularly for analysis.

The practising pharmacist is confronted with many difficulties, due partly to the excessive competition resulting from too great a number of pharmacists on one hand and the superfluous number of charitable and Government institutions on the other, and partly to expansion of trade in proprietary and patent medicines which is greatly diminishing the amount of dispensing.

Regulations as to conditions under which licenses to practise the profession of pharmacy may be granted were published in May. Under these regulations Government recognises schools or universities wherein the course of study is at least three academic years. In addition to this the regulations demand a specific pre-university education equivalent to the Palestine matriculation course and that the language in which the course of pharmacy was studied was one of the subjects of this pre-university education.

In November, a second local examination was held for those candidates who failed in the examinations held in 1930 of pharmacists holders of a qualification granted by a French school and those who graduated after the 1st examination in 1930. Two French professors at the French University of St. Joseph in Beirut assisted the Department by acting as external examiners. Out of 14 candidates, 8 satisfied the examiners.

An examination for Assistant Pharmacists under Public Health (Pharmacy) Ordinance No. 25 of 1928, was held in March, Three local pharmacists assisted the Department by acting as local examiners. Out of 54 candidates who presented themselves for examination 16 failed.

18. International Opium Convention.

71 Certificates were granted for the importation of dangerous drugs. The Exporting countries were England, Germany, Switzerland, France and Italy. Imports were as follows:-

Medicinal Opium.	18.425 grams.	Pantopon.	326 grams.	Cocaine.	3.989 grams.
Morphine.	905 "	Dicodio.	246 "	Ext. Canabies Indica.	1.055 "
Heroine.	230 "	Eucodal.	5 "	Tincture Canabies Indica.	1.225 "

There is little evidence of drug addiction in Palestine, but Hashish is smoked by a few of the lower classes.

During the year amendments were made to the Schedule of the Dangerous Drugs Ordinance to incorporate in the legislation recent recommendations made by the Health Committee of the League of Nations and accepted by his Majesty's Government for extension to Colonies, Protectorates and Mandated Territories. These alterations have the effect of bringing preparations which contain Esters of Morphine, Dihydro-oxycodeinone (eucodal), Dihydro-codeinone (dicodide), Dihydro-morphine (dilaudide) and salts of these substances within the scope of the Dangerous Drugs Ordinances whatever the percentage of narcotic substances contained may be.

LICENCES GRANTED TO DOCTORS, PHARMACISTS, DENTISTS AND MIDWIVES — 1931.

				Nationality																																		
			Sex	American	Armenian	Austrian	Australian	British	Bulgarian	Canadian	Chinese	Czecho-Slovak	Dutch	Egyptian	Estonian	French	German	Greek	Hijaz	Hungarian	Italian	Lettish	Lithuanian	New-Zealand	Palestinian	Persian	Polish	Roumanian	Russian	Spanish	Swedish	Swiss	Syrian	Trans-Jordan	Turkish	Ukrainian	Yugo-Slav	Totals	Grand Totals
Medicine	Licences Granted	Prior to 1931	M	8	10	19	—	33	4	1	—	10	—	2	—	3	34	6	1	1	3	1	13	1	141	1	40	11	80	1	1	1	47	1	15	4	1	494	
			F	3	—	1	—	6	2	—	1	2	—	—	—	—	4	—	—	2	—	1	5	—	20	—	18	5	71	—	—	—	—	—	—	4	—	145	
		During 1931	M	3	—	—	—	4	—	—	—	—	—	—	1	1	1	—	—	1	—	—	—	—	8	—	2	—	—	—	—	—	—	—	—	—	—	21	
			F	1	—	—	—	2	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	2	—	1	—	1	—	—	—	—	—	—	—	—	7	667
Pharmacy	Licences Granted	Prior to 1931	M	3	10	4	1	1	2	1	—	2	—	1	—	1	5	3	—	—	—	1	2	—	55	—	7	3	20	—	—	—	22	—	5	3	—	152	
			F	—	—	1	—	3	—	—	—	—	1	—	—	—	—	—	—	—	—	—	1	—	7	—	3	1	5	—	—	—	—	—	—	—	—	22	
		During 1931	M	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	8	—	1	—	1	—	—	—	—	—	—	1	—	11	
			F	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	3	—	1	—	1	—	—	—	—	—	—	—	—	5	190
Dentistry	Licences Granted	Prior to 1931	M	5	3	—	—	—	—	—	—	—	—	1	1	—	3	—	—	1	—	—	2	—	20	—	5	—	16	—	—	1	2	—	2	—	—	62	
			F	2	—	—	—	—	—	—	1	—	—	—	2	—	—	—	—	—	—	—	6	—	26	—	40	7	53	—	—	—	—	—	—	3	—	140	
		During 1931	M	—	—	—	—	—	—	—	—	—	—	2	—	—	1	—	—	—	—	—	—	—	2	—	1	—	—	—	—	—	—	—	—	—	—	6	
			F	—	—	—	—	—	—	—	—	—	—	—	1	—	—	—	—	—	—	2	2	—	2	—	2	—	1	—	—	—	—	—	—	—	—	10	218
Midwifery	Licences Granted	Prior to 1931	F	5	5	3	—	15	—	—	—	1	—	1	—	2	12	2	—	—	—	—	6	—	160	—	31	3	50	—	1	1	12	—	5	8	—	323	
		During 1931	F	—	—	—	—	4	—	—	—	—	—	1	—	—	—	—	—	—	—	—	—	—	17	—	—	—	—	—	—	—	—	—	—	—	—	22	345

IV. SANITARY ADMINISTRATION.

1. Water Supplies.

The rainfall for the winter season, 444 mm. (mean of 38 stations) was below the average for the past 20 years (540 mm., mean of 7 stations). Shortage of water was a matter of hardship in many of the hill areas in which catchment cisterns form an important source of supply for domestic purposes. The succession of years with deficient rainfall has also led to serious diminution of the flow of many perennial springs on the hills. In some cases springs hitherto regarded as reliable and copious sources ceased to flow during the summer.

The situation in Jerusalem has again become critical. The extensions of the town supply effected from sources in the neighbourhood cannot meet adequately the requirements of the increasing population. In view of the poor rainfall, arrangements were made to collect surface water into the storage reservoirs at Solomon's Pools and pending the installation of a filtration plant, consumers were advised to boil water for drinking purposes. A rapid filtration plant was in operation by the end of August. From May onwards, water was supplied to consumers on alternate days and in October it was necessary to reduce this further to once in four days. On account of the serious situation, the Ain Fawar spring was incorporated in the sources of supply during August but unfortunately this afforded only temporary relief as the yield from the spring ceased in September. The outlook for 1932 is exceedingly serious as the winter rainfall from October to December is again below normal. The only permanent solution of the Jerusalem water supply is the adoptiou of the scheme proposed in 1927 to bring water from the springs of the River Auja in Jaffa District. After detailed examination of the technical and financial aspects of the scheme and of other possible alternatives, a recommendation was made to the Secretary of State in favour of this project, and also that negotiations with the holders of an Ottoman concession for the water supply of Jerusalem should be terminated in view of the impossibility of securing agreement for the supply of water at a reasonable cost to the consumer by the concessionaires.

Investigations of possible sources of supply for Haifa town were continued but so far do not offer a suitable alternative to the ultilisation of the Kabri sources.

The Secretary of State's approval was sought for the financial aspects of the water supply scheme for Nablus town. The proper protection and distribution of this supply is an urgent matter.

In Hebron town, the scarcity of water is a considerable hardship. Investigations were made by the Department of Public Works as to the possibility of ultilizing springs at Dilba and Hijra.

Beersheba suffered through a serious decrease in the amount of water obtainable from the Municipal bore. The Municipality is reluctant to take over the Government well on the conditions offered. After supplying the needs of Government establishments from this well, it appeared to the Council that there would not be any appreciable quantity of water available to augment the town supply.

Further minor extensions to the Jaffa main supply were made during the year. In Tel-Aviv, the Council calculate that water consumption approximates 50 gallons per head of the population, obtained from bores in the Municipal area. An automatic chlorinating apparatus was installed at the Allenby Street pumping station.

Ramleh supply is inadequate and unsatisfactory. An increase of the service reservoir capacity is required and the service mains which were laid during the Ottoman administration are now to a large extent in need of replacement.

Considerable improvements were made to the Lydda supply by the construction of a new service reservoir and an extended system of service mains.

Progress is being made with the improvement of the Majdal supply.

No further progress was effected in the improvement of the Gaza Municipal supply The financial aspects of the scheme still present difficulty.

2. Sanitary Engineering Section.

(a) General.

One result of the general state of economic depression was a marked reduction in construction of the larger types of buildings and there was a consequent diminution of field work in connection with new buildings. The opportunity was, therefore, taken to increase the scope of the sanitary educational programme.

Architects and engineers as in past years were encouraged to consult this section of the department in the preparation of preliminary sanitary drawings and specifications.

An indication of progress is the facility with which it is possible to obtain good grades of plumbing material and fittings. Control of the supplies on the market is essential since, owing to the keenness of competition, defective material is frequently used to cover losses or to increase the margin of profit. Particularly important is this in Municipal areas in which a duly qualified sanitary surveyor is not employed by the authority.

Examinations in plumbing were held for the Jaffa district on 11th of May 1931 and for the Haifa district on 28th of May 1931. Candidates were encouraged to come from the various towns and settlements for the three days examination covering the theoretical, oral, and practical tests that were prepared by the Sanitary Engineer in consultation with local committees. Certificates were issued to the successful candidates. During the past seven years, some 85 plumbers have received official recognition and have been awarded certificates.

The Haifa Technical Institute and the Montefiori Technical School in Tel-Aviv requested and were provided with a syllabus and sets of sanitary standard drawings for their instruction classes in architecture and plumbing. Further expansion of these courses, with complete training in plumbing, house sanitation and drainage is proposed by the Haifa Institute.

Standard type plans for farm structures, houses, schools and sanitation were prepared by the Jewish Agency in consultation with this office. This will ensure that the various requirements are understood and that the work is carried out in a uniform manner for all proposed new settlements.

An outline of the various projects on which the sanitary engineering section was engaged is given below:—

(b) Water Supplies.

Jerusalem. Mechanical filters and chlorinating apparatus for Solomon's pools were installed during the year. This safeguard has made possible the collection and storage of surface water from the collecting area.

Tel-Aviv. Chlorinating apparatus. (Paradon type) as recommended was installed at the Allenby Street well pumping station.

Zeeb—Acre District. Improvements to village well recommended to safeguard the water supply. Drawing was sent to Public Works Department for necessary alterations and modifications.

Safad. Recommendations were made to the local authorities for improving the existing water supply.

Village Supplies. In the course of lectures to the Sub Sanitary Inspectors the problem of a good water supply was especially emphasized. The various safeguards essential to ensure a pure supply were indicated. Methods of obtaining samples for laboratory analysis were demonstrated and the procedure followed in laboratories was carefully explained to emphasize the care required in obtaining the samples.

(c) Sewerage Schemes and Drainage Disposal.

Jerusalem. Further extension of North West drainage system which now approaches the limit of the area capable of being drained by gravity to the existing disposal system: consideration of a scheme to improve conditions at the outfall of this system: consultations with City Engineer in regard to main drainage line—Birket Mamilla—Jaffa Road—Hinon Valley—Valley of Jehoshaphat.

Jaffa. Review and suggestions in regard to the proposed scheme for drainage of Tel-Aviv Commercial Centre.

Safad. The new sewer in the Jewish Quarter was completed by Public Works Department.

(d) Public Establishments.

Plans of the following, amongst others, were reviewed and inspections made on request for technical advice.

Jerusalem. New Fast Hotel, Edison Theatre, Eden Cinema, King David Hotel, New Y.M.C.A. buildings (ventilation and drainage problems), Rosenbloom Memorial building at Hebrew University, etc.

Jaffa. Tel-Aviv abbattoir drainage, Chelouche market, Richon-le-Zion ice plant, designs for labour camps, etc.

Tiberias. New public market design, improvements to El-Hamme baths, Affula Hospital, etc.

Advice was given in regard to construction etc., and improvements of many public and private institutions.

3. Municipal Sanitary Services.

Continued progress is to be recorded in the sanitary services in Municipal areas, and the enactment of the Sewerage and Drainage (Amendment) Ordinance, 1932, will be of great benefit to such Municipal areas which employ a Sanitary Surveyor.

A Municipal Sanitary Surveyor is defined as one "appointed by a local authority with the approval of the High Commissioner to discharge the duties appertaining to such office", and section 5 empowers the Director, Department of Health, to delegate to a Municipal Sanitary Surveyor all or any of the powers and duties of a Medical Officer of the Department of Health under this Ordinance, and authorizes the Municipal Sanitary Surveyor to have the powers and to perform the duties of a Medical Officer of the Department of Health within the limits of such delegation.

Municipal Sanitary Surveyors as so defined are at present employed by the Municipal authorities in Jerusalem, Jaffa, and Haifa. Tel-Aviv has not yet made such an appointment.

The construction of the abbatoir and of the new destructor for Jerusalem is approaching completion.

As mentioned earlier in this report, extensions were made to the North West drainage system of Jerusalem. The disposal plant for this system now presents a problem since it was originally designed for a population of only 4000 whereas it now has to serve four times that number.

Plans for construction of a sewerage system for the South West portion of the city are now complete.

The progress in the construction of the harbour at Haifa made the question of sewage disposal in the harbour area one of extreme urgency. As a temporary measure, a scheme was prepared and executed for the collection of sewage at points where it entered the harbour basin and for pumping it to a point outside the breakwater.

4. Village Sanitation.

The attainment of any progress in respect of village sanitation is a matter of considerable difficulty. The majority of the villages are so poor as to be unable to improve the conditions under which they live.

In connection with the investigation of ankylostomiasis in Jaffa area, a commencement has been made in certain of the infected villages to instal, at the cost of the inhabitants, latrines of the bored hole type.

In new Jewish settlements, the standardisation of buildings designed for houses, schools, etc. will have the effect of improving the sanitary conditions under which the settlers live.

5. Licensing and Control of Trades and Industries.

The petroleum regulations which were formulated in 1930 have been put into effect during 1931. In this connection the Department of Health is responsible for the licensing of all establishments dealing in petroleum, and the regulations as applicable to retail stores are applied direct, while in the case of distributing stores and bulk installations, the approval of the Department of Public Works on technical matters is first obtained. The retail stores dealt with directly by the Department of Health numbered 582; bulk installations and distributing stores licensed in conjunction with the Department of Public Works numbered 52.

Attention has been given in particular to the question of the adulteration of milk and of butter, and in this connection, reference is invited to the appropriate paragraph of this report on the work of the Chemical Division of the Laboratory Section.

In the absence of a Food Adulteration Act, recourse has been had to the application of special conditions regarding the labelling of these commodities so as to ensure that each packet or container sold bears the name of the manufacturer and packer and also a statement as to the true nature of the contents.

In conjunction with the Department of Agriculture, the control of cowsheds particularly within the areas of the larger towns has been put into effect with the result that many of the old dirty and unsuitable cowsheds situated in poor and populous areas have been condemned and action has been taken for their establishment, under conditions of a much higher standard in all respects, in suburban areas. In Jerusalem alone, 19 such sheds have been dealt with.

The question of a clean milk supply by hawkers remains unsolved. Conditions for the transport of milk from the villages in standard pattern receptacles are enforced but, apart from elementary principles, little has been accomplished in the village areas in regard to control of the method of production of milk.

Special conditions for public stables and for places of public entertainment were drawn up and are in process of translation.

The special conditions for 33 of the more important trades which were drafted in 1930 were put into force in 1931.

The Department of Health post of Inspector of Trades and Industries was abolished at the end of the year.

V. RELIEF.

There still remain 3 orphans in the Syrian Orphanage in Jerusalem towards whose maintenance a contribution is made from Departmental credits. It is anticipated that these orphans will cease to be a charge to public funds in 1932.

NUMBER OF TRADES AND INDUSTRIES IN PALESTINE LICENSED DURING 1931.

Nature of Trade or industry and Classification in the Schedule under the Trades and Industries Ordinance 1927.	SUB-DISTRICT OF																			TOTALS
	Jerusalem	Ramallah	Bethlehem	Hebron	Beersheba	Jaffa	Tel-Aviv	Ramleh	Gaza	Majdal	Haifa	Acre	Nazareth	Nablus	Tulkarem	Tiberias	Safad	Baisan	Jenin	
Class I. A.																				
1. Hawkers etc. (including water carriers)	319	46	34	5	—	98	194	45	21	3	187	78	296	23	69	193	105	27	—	1815
2. Bakeries, public ovens, bread aud bakers shops	111	6	2	23	5	63	110	19	14	7	45	15	22	25	9	39	22	3	6	546
3. Butchers shops and tripe shops	141	14	31	16	3	63	127	15	15	11	86	17	37	21	14	31	18	5	2	667
4. Cold storage establishments	1	—	—	—	—	—	1	—	—	—	—	—	—	—	—	—	—	—	—	2
5. Confectionery, sweetmeat, jam and preserved fruit establishments (including pastry shops)	7	—	2	2	5	19	9	14	9	1	11	18	2	33	3	2	7	—	1	145
6. Fish frying shops	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
7. Fish shops	18	14	—	—	—	3	34	1	2	—	6	4	2	—	—	8	1	—	—	93
8. Flour and corn mills	22	—	6	13	6	13	10	26	4	8	12	7	7	4	—	4	—	1	2	145
9. Grain and cereal shops	25	3	7	24	19	34	28	13	46	1	40	10	6	23	10	9	—	—	—	298
10. Groceries, flour stores and shops for the sale of vegetables and fruit	1004	150	116	174	88	468	706	201	243	120	495	159	134	265	120	186	117	73	20	4839
11. Ice cream manufacturers, shops and stores	1	—	—	1	—	—	13	—	—	—	4	1	2	—	3	11	2	—	1	39
12. Macaroni factories	1	—	—	—	—	—	1	—	—	—	—	—	—	—	—	—	—	—	—	2
13. Milk, butter, cheese and dairy produce shops	6	—	—	—	—	5	53	—	—	—	5	—	2	6	—	2	3	—	—	82
14. Oil mills and oil stores (other than mineral oil stores)	17	92	9	10	—	4	14	32	6	7	14	26	2	4	3	1	—	—	—	241
15. Pickle factories	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
16. Poultry shops	48	—	—	—	—	—	39	—	—	—	1	—	—	—	—	—	—	—	—	88
17. Preserved fish depots	—	—	—	—	—	5	—	—	—	—	—	—	—	—	—	—	—	—	—	5
18. Public kitchens	2	—	—	—	—	—	2	—	14	—	—	27	—	—	—	7	—	—	—	52
19. Aerated water factories	9	—	—	—	—	2	9	1	—	—	3	1	1	—	—	—	1	—	—	27
20. Artificial butter factories	2	—	—	—	—	—	4	—	—	—	—	—	—	—	—	—	—	—	—	6
21. Factories for canning, curing or preserving meat or fish (including sausage factories)	2	—	—	—	—	5	5	—	—	—	—	5	—	—	—	—	—	—	—	17
22. Ice factories and ice stores	7	—	—	—	—	7	11	—	1	—	4	2	2	—	—	3	—	1	—	38
23. Sugar refineries and factories, molasses factories	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
24. Public markets (excluding horse and cattle markets)	3	—	—	—	—	5	1	—	—	—	—	—	2	—	—	1	—	—	—	12
25. Establishments for the sale of non-alcoholic beverages	43	—	—	—	—	12	70	1	—	—	53	—	—	—	—	—	—	—	—	179
26. Manufactories of water ice (Barrad)	—	—	2	—	—	13	—	1	—	—	1	—	1	—	—	3	—	—	—	21
27. Enterprises for the supply of water by pipe to the public for domestic or industrial purposes	—	—	—	—	—	—	—	—	—	—	9	—	—	2	—	—	—	—	—	11
28. Carriers and transporters of meat, fish, ice and milk	19	—	—	4	—	—	1	—	—	—	—	—	—	—	—	7	4	—	—	35
Class II. A.																				
1. Hotels, places for public entertainment and all establishments licensed under the Intoxicating Liquors and Public Entertainments Ordinance 1922 (including Cinemas and Public Halls)	141	14	7	1	2	52	90	16	6	—	81	15	38	2	2	20	17	—	3	507
2. Alcohol depots	2	—	—	—	—	2	5	—	—	—	—	—	—	—	—	—	—	—	—	9
3. Cafes and restaurants not licensed under the Intoxicating Liquors and Public Entertainments Ordinance 1922	174	7	19	14	8	166	135	54	9	8	117	24	23	42	15	34	12	10	11	882
4. Lodging houses and boarding houses where intoxicating liquors are not sold	25	—	—	4	1	28	39	3	1	—	30	—	6	8	9	25	9	1	—	189
5. Public baths, bathing places and wash houses	5	—	—	4	—	1	3	—	4	—	5	2	—	5	—	1	2	—	—	32
6. Breweries, wine presses and factories of alcohol, vinegar or any fermented or spiritous liquor	6	1	3	—	—	1	—	—	—	—	2	—	1	—	—	—	—	—	—	14
Class II. B.																				

22. Ice factories and ice [illegible]	7	—	—	—	—	7	11	—	1	—	4	2	2	—	—	3	—	1	—	38
23. Sugar refineries and factories, molasses factories	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
24. Public markets (excluding horse and cattle markets)	3	—	—	—	—	5	1	—	—	—	—	—	2	—	—	1	—	—	—	12
25. Establishments for the sale of non-alcoholic beverages	43	—	—	—	—	12	70	1	—	—	53	—	—	—	—	—	—	—	—	179
26. Manufactories of water ice (Barrad)	—	—	2	—	—	13	—	1	—	—	1	—	1	—	—	3	—	—	—	21
27. Enterprises for the supply of water by pipe to the public for domestic or industrial purposes	—	—	—	—	—	—	—	—	—	—	9	—	—	2	—	—	—	—	—	11
28. Carriers and transporters of meat, fish, ice and milk	19	—	—	4	—	—	1	—	—	—	—	—	—	—	—	7	4	—	—	35
Class II. A.																				
1. Hotels, places for public entertainment and all establishments licensed under the Intoxicating Liquors and Public Entertainments Ordinance 1922 (including Cinemas and Public Halls)	141	14	7	1	2	52	90	16	6	—	81	15	38	2	2	20	17	—	3	507
2. Alcohol depots	2	—	—	—	—	2	5	—	—	—	—	—	—	—	—	—	—	—	—	9
3. Cafes and restaurants not licensed under the Intoxicating Liquors and Public Entertainments Ordinance 1922	174	7	19	14	8	166	135	54	9	8	117	24	23	42	15	34	12	10	11	882
4. Lodging houses and boarding houses where intoxicating liquors are not sold	25	—	—	4	1	28	39	3	1	—	30	—	6	8	9	25	9	1	—	189
5. Public baths, bathing places and wash houses	5	—	—	4	—	1	3	—	4	—	5	2	—	5	—	1	2	—	—	32
6. Breweries, wine presses and factories of alcohol, vinegar or any fermented or spiritous liquor	6	1	3	—	—	1	—	—	—	—	2	—	1	—	—	—	—	—	—	14
Class II. B.																				
1. Establishments for the retail sale of petroleum, paraffin and mineral oils	28	1	6	6	1	98	284	4	10	3	12	8	14	24	6	32	26	1	18	582
2. Establishments employing power driven machinery	77	—	—	—	—	74	104	9	1	—	69	2	1	22	24	12	—	—	13	381
3. Establishments employing steam under pressure	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
4. Garages for motor vehicles (Public garages and garages for public vehicles)	36	20	2	14	1	11	2	—	2	—	12	5	10	5	—	10	3	1	2	136
5. Asphalt and bitumen factories	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
6. Factories of explosives or of articles containing explosives	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
7. Match factories and store houses for matches	—	—	—	—	—	—	1	—	—	—	—	1	—	—	—	—	—	—	—	2
8. Stores for explosives (other than ammunition)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
9. Factories for the manufacture of mineral acids and other chemical products and stores for such products	—	—	—	1	—	—	7	—	—	—	1	—	—	—	—	—	—	—	—	9
10. Petroleum, paraffin and mineral oil stores	8	1	—	4	—	5	8	—	1	—	10	3	1	3	—	2	—	2	4	52
11. Premises for the repair or sale of firearms or ammunition	3	1	—	—	—	4	—	—	2	—	—	—	1	2	—	—	—	—	—	13
12. Warehouses for firearms and ammunition	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
13. Shops for the sale of explosives	—	—	—	—	—	—	—	—	—	—	1	—	—	—	—	—	—	—	—	1
Class III.																				
1. Cattle and horse markets	—	—	—	—	—	—	—	—	—	—	—	—	2	—	—	—	—	—	—	2
2. Cattle sheds (includes sheds for oxen, sheep and goats)	312	34	41	—	—	4	9	—	—	—	41	—	—	—	—	—	24	—	—	465
3. Dairies in which milk and cream are prepared for distribution or butter or cheese is manufactured	6	—	—	—	—	1	15	—	—	—	22	—	2	—	—	2	1	—	—	49
4. Public stables and khans and all stables or yards in which animals or birds are kept for commercial or industrial purposes	25	—	3	1	2	1	—	10	3	3	6	8	6	14	7	16	9	2	2	118
5. Slaughter houses	3	1	—	—	—	—	7	—	—	—	1	—	1	—	—	—	—	—	—	18
6. Pigsties and Piggeries	—	3	—	—	—	—	—	—	—	—	1	—	1	—	—	—	—	—	—	5
Clas I. B.																				
1. Barbers and hairdressers	110	18	14	20	7	99	71	49	30	29	159	38	30	28	18	15	17	4	5	761
2. Dyeworks	3	—	—	6	5	1	2	—	25	18	1	—	—	—	—	—	—	—	—	61
3. Factories for beating cording, pressing or otherwise preparing wool, hair or jute for trade purposes	—	—	—	—	—	—	—	—	—	—	1	—	—	15	—	—	—	—	—	16
4. Laundries and dry cleaning establishments	20	—	—	1	—	6	27	3	—	—	10	—	1	—	—	3	—	—	—	71
5. Pharmacies and drug stores (including attars)	58	2	2	9	—	20	55	3	4	—	26	32	5	6	1	3	4	—	1	231
6. Rag and second hand clothing establishments	22	2	—	2	—	12	4	3	1	—	2	—	4	—	—	4	—	—	—	56
7. Starch factories	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
8. Manufacturing chemists and druggists and manufactories of medical products	1	—	—	—	—	—	2	—	—	—	—	—	—	—	—	—	—	—	—	3
9. Perfumery and scent manufactories	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
10. Premises on which materials containing poison are made or sold for agricultural purposes	—	—	—	—	—	1	2	—	—	1	—	—	—	—	—	—	—	—	—	4
11. Public Pathological and Bacteriological Laboratories	4	—	—	—	—	—	1	—	—	—	—	—	—	—	—	—	—	—	—	5
Class I. C.																				
1. Alkali works	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
2. Blood boiling establishments	1	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	1
3. Bone boilers	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
4. Bone burners	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
5. Crematoria	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
6. Fellmongers (including furriers)	6	1	1	15	—	—	—	—	8	2	—	—	1	4	1	—	2	1	—	42

Class II. B.																				
1. Establishments for the retail sale of petroleum, paraffin and mineral oils	28	1	6	6	1	98	284	4	10	3	12	8	14	24	6	32	26	1	18	582
2. Establishments employing power driven machinery	77	—	—	—	—	74	104	9	1	—	69	2	1	22	24	12	—	—	13	381
3. Establishments employing steam under pressure	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
4. Garages for motor vehicles (Public garages and garages for public vehicles)	36	20	2	14	1	11	2	—	2	—	12	5	10	5	—	10	3	1	2	136
5. Asphalt and bitumen factories	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
6. Factories of explosives or of articles containing explosives	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
7. Match factories and store houses for matches	—	—	—	—	—	—	1	—	—	—	—	1	—	—	—	—	—	—	—	2
8. Stores for explosives (other than ammunition)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
9. Factories for the manufacture of mineral acids and other chemical products and stores for such products	—	—	—	1	—	—	7	—	—	—	1	—	—	—	—	—	—	—	—	9
10. Petroleum, paraffin and mineral oil stores	8	1	—	4	—	5	8	—	1	—	10	3	1	3	—	2	—	2	4	52
11. Premises for the repair or sale of firearms or ammunition	3	1	—	—	—	4	—	—	2	—	—	—	1	2	—	—	—	—	—	13
12. Warehouses for firearms and ammunition	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
13. Shops for the sale of explosives	—	—	—	—	—	—	—	—	—	—	1	—	—	—	—	—	—	—	—	1
Class III.																				
1. Cattle and horse markets	—	—	—	—	—	—	—	—	—	—	—	—	2	—	—	—	—	—	—	2
2. Cattle sheds (includes sheds for oxen, sheep and goats)	312	34	41	—	—	4	9	—	—	—	41	—	—	—	—	—	24	—	—	465
3. Dairies in which milk and cream are prepared for distribution or butter or cheese is manufactured	6	—	—	—	—	1	15	—	—	—	22	—	2	—	—	2	1	—	—	49
4. Public stables and khans and all stables or yards in which animals or birds are kept for commercial or industrial purposes	25	—	3	1	2	1	—	10	3	3	6	8	6	14	7	16	9	2	2	118
5. Slaughter houses	3	1	—	—	—	—	7	—	—	—	1	—	1	—	—	—	—	—	—	18
6. Pigsties and Piggeries	—	3	—	—	—	—	—	—	—	—	1	—	1	—	—	—	—	—	—	5
Clas I. B.																				
1. Barbers and hairdressers	110	18	14	20	7	99	71	49	30	29	159	38	30	28	18	15	17	4	5	761
2. Dyeworks	3	—	—	6	5	1	2	—	25	18	1	—	—	—	—	—	—	—	—	61
3. Factories for beating cording, pressing or otherwise preparing wool, hair or jute for trade purposes	—	—	—	—	—	—	—	—	—	—	1	—	—	15	—	—	—	—	—	16
4. Laundries and dry cleaning establishments	20	—	—	1	—	6	27	3	—	—	10	—	1	—	—	3	—	—	—	71
5. Pharmacies and drug stores (including attars)	58	2	2	9	—	20	55	3	4	—	26	32	5	6	1	3	4	—	1	231
6. Rag and second hand clothing establishments	22	2	—	2	—	12	4	3	1	—	2	—	4	—	—	4	—	—	—	56
7. Starch factories	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
8. Manufacturing chemists and druggists and manufactories of medical products	1	—	—	—	—	—	2	—	—	—	—	—	—	—	—	—	—	—	—	3
9. Perfumery and scent manufactories	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
10. Premises on which materials containing poison are made or sold for agricultural purposes	—	—	—	—	—	1	2	—	—	1	—	—	—	—	—	—	—	—	—	4
11. Public Pathological and Bacteriological Laboratories	4	—	—	—	—	—	1	—	—	—	—	—	—	—	—	—	—	—	—	5
Class I. C.																				
1. Alkali works	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
2. Blood boiling establishments	1	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	1
3. Bone boilers	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
4. Bone burners	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
5. Crematoria	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
6. Fellmongers (including furriers)	6	1	1	15	—	—	—	—	8	2	—	—	1	4	1	—	2	1	—	42
7. Gut scrapers	1	—	—	1	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	2
8. Knackers	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
9. Lime Kilns	—	—	—	—	—	—	—	—	—	—	—	—	—	—	35	—	—	—	—	35
10. Manure depots including depots for refuse and artifical manure depots and factories	1	—	—	—	—	1	—	—	—	—	—	—	—	1	—	—	—	—	—	3
11. Potteries, brick works and tile making industries	13	—	1	12	—	6	22	2	35	—	13	—	—	2	—	2	—	—	—	108
12. Tallow makers	1	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	1
13. Tanneries	2	—	—	11	—	—	—	—	—	—	—	—	—	2	—	3	—	—	—	18
14. Tripe boilers	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	1	—	—	—	1
15. Candle factories	2	—	1	—	—	—	2	—	—	—	1	—	—	—	—	—	—	—	—	6
16. Mirror factories	—	—	—	—	—	4	1	—	—	—	—	—	—	—	—	—	—	—	—	5
17. Paint factories	—	—	—	—	—	1	—	—	—	—	—	—	—	—	—	—	—	—	—	1
18. Paper factories	—	—	—	—	—	—	—	—	—	—	1	—	—	—	—	—	—	—	—	1
19. Soap factories (using animal or vegetable oil and fats)	1	—	—	—	—	3	5	5	1	—	1	—	—	24	—	—	—	—	—	40
20. Tobacco, tombac, cigarette or snuff factories	1	—	1	—	—	2	2	—	—	—	3	—	—	1	—	—	—	—	—	10
21. Cement factories	—	—	—	—	—	—	—	—	—	—	1	—	—	—	—	—	—	—	—	1

VI. QUARANTINE SERVICE.

1. General.

Owing to the presence of plague in Alexandria, quarantine restrictions were enforced at the ports of Palestine against arrivals by sea from that port during various periods from June to October.

Cholera in Bombay necessitated the enforcement of restrictions against passengers arriving by air from that town from July until the end of the year.

An outbreak of cholera in Iraq led to the establishment of quarantine control on the frontiers between this country and Trans-Jordan and Syria. Quarantine posts were established at Ras-el-Nakura, Roshpina, and Allenby Bridge. Quarantine restrictions were enforced on 9th August and removed on 1st January, 1932.

During that period there were in Iraq 2,462 cases and 1567 deaths. Cases of cholera in Persia during November and December necessitated similar measures against arrivals from that country.

2. Port Quarantine.

131 passengers, 409 immigrants and 16 pilgrims were detained in the Quarantine Lazarettes on arrival at the ports; 6 workmen were also detained. 32 Bills of Health, 209 booklets and 68 certificates were issued.

The records of quarantine procedure are shown in separate tables.

3. Medical Surveillance.

20019 persons entered the country and were notified for surveillance at their destinations. 19723 reported of whom one was found suffering from tuberculosis of the lungs and one from malaria.

4. Moslem Pilgrimage.

432 Palestinian and 11 Trans-Jordanian citizens proceeded under arrangements made by the Department of Health on the pilgrimage to Mecca. All returned to their districts after the festival. Of pilgrims who travelled independently to and from Hijaz, 4 Palestinians left Palestine and 12 Palestinians returned.

191 foreign pilgrims of whom 92 were Syrians, 36 Iraqians, 45 British Indians and 18 Afghans entered Palestine via Samakh en route to the Hijaz. After the pilgrimage, 82 foreign pilgrims passed through Palestine via Kantara travelling by the overland route to their homes. Of these, 53 visited Jerusalem and 1 visited Jaffa.

5. Immigration.

5533 Immigrants and travellers permitted to remain as immigrants were recorded during the year. Their classification by countries of origin is as follows:—

Austria	44	Roumania	252	China	7
Belgium	16	Russia	371	Cyprus	18
Bulgaria	21	Spain	20	Hedjaz	1
Czechoslovakia	37	Sweden	1	India	10
Danzig	3	Switzerland	12	Iraq	140
Denmark	7	United Kingdom & Irish Free State	457	Persia	46
Esthonia	6			Strait Settlements	7
Finland	1	Yugoslavia	15	Syria	274
France	109	Yemen	214	Trans-Jordan	1
Germany	224	Abyssinia	10	Turkey	72
Greece	117	Algiers	2	Canada	25
Hungary	33	Egypt	266	U.S.A.	382
Italy	83	Morocco	6	Argentine	16
Latvia	61	Nigeria	1	Brazil	14
Lithuania	179	Sudan	2	Mexico	12
Malta	3	Tanganyika	2	Other Countries of Latin America	78
Netherlands	14	Tunis	1		
Norway	1	Union of South Africa	7	Australia	13
Poland	1679	Aden	86	New-Zealand	3
Portugal	4	Afghanistan	37	Unspecified	10

9794 immigrants and travellers permitted to remain as immigrants were medically examined under the Immigration Regulations, as follows:—

Examined at:-	Jerusalem	Jaffa	Haifa	Other Places	Totals
Number examined	3195	2344	1325	2920	9794
Percentage of total examinations	32.62	24.03	13.53	29.81	

Of these there were 3 lepers, 2 blind, 1 with paralysis, 1 with tuberculosis, and 1 was insane.

RECORD OF QUARANTINE PROCEDURE WITH VESSELS 1931.

	Free Pratique			In Quarantine			Total Vessels
	Number of S. S.	Number of S. V.	Totals	Number of S.S.	Number of S.V.	Totals	
January	115	18	133	—	—	—	133
February	98	5	103	—	—	—	103
March	108	49	157	—	—	—	157
April	90	210	300	—	—	—	300
May	106	214	320	—	—	—	320
June	91	291	382	—	—	—	382
July	92	561	653	—	—	—	653
August	83	393	476	—	—	—	476
September	99	334	433	—	—	—	433
October	92	250	342	—	—	—	342
November	120	135	255	—	—	—	255
December	112	107	219	—	—	—	219
TOTALS	1206	2567	3773	—	—	—	3773

RECORD OF PERSONS SUBJECTED TO "MEDICAL OBSERVATION" AT PORTS DURING 1931.

Port of	Persons detained in Lazarettes						In quarantine on Board ships
	Passengers	Immigrants	Pilgrims	Crew	Workmen	Totals	
Jaffa	75	232	5	—	2	314	—
Haifa	56	177	11	—	4	248	—
Acre	—	—	—	—	—	—	—
Gaza	—	—	—	—	—	—	—
TOTALS	131	409	16	—	6	562	—

RECORD OF PERSONS SUBJECTED TO "MEDICAL SURVEILLANCE" DURING 1931.

Entering Palestine at	Number notified	Number found at destination		Number not found at destination	Percentage found
		Healthy	Sick		
Jaffa by sea	12192	11978	2	212	98.3
Haifa by sea	6735	6657	—	78	98.8
Acre by sea	—	—	—	—	—
Gaza by sea	—	—	—	—	—
Kantara by land	560	560	—	—	100.0
Roshpina by land	257	252	—	5	98.0
Ras-en-Naqura by land	210	209	—	1	99.5
Samakh by land	65	65	—	—	100.0
TOTALS	20019	19721	2	296	98.5

VII. LABORATORY SECTION.

I. GENERAL.

The principal changes brought about during 1931 have been the establishment of a much-needed port laboratory at Jaffa, the absorption of the agricultural analytical service by the chemical division of the Central Laboratories and the unfortunate abolition of the recently created post of Medical Entomologist. The first of these changes has resulted from the unremitting representations made to Government since 1925, the second and third were necessitated by Palestine's economic condition, which had become more than ordinarily acute. A suggestion that the Veterinary Laboratory should form part of the Medical Laboratory was regarded unfavourably by the Health Department's advisers, in as much as accommodation at the Central Laboratories was already fully taxed and no economy considerable enough to warrant the proposal's being carried out was likely to be secured by the amalgamation. As it is, the housing of the agricultural laboratory staff at the Central Laboratories has envisaged the construction of two additional rooms, while provision of accommodation for the Standard Weights and Measures, of which the Government Analyst is now the Keeper, has entailed no little rearrangement and structural alteration.

As presently constituted the Central Laboratories, in addition to bacteriological, pathological, serological, entomological, chemical, bio-chemical, physical and forensic divisions, include an anti-rabies institute for the large scale manufacture of carbolised virus, a calf lymph establishment and a sub-section for the preparation of other vaccines and of agglutinating and precipitating sera.

During 1931 the bacteriological division has carried out over 100,000 investigations and has prepared 591,400 doses of small-pox lymph, 129,690 c.c. of anti-rabies vaccine (1850 courses of Pasteurian treatment), 51,450 c.c. of anti-enterica, anti-cholera and anti-plague vaccines and 432 autogenous vaccines. Enquiry into the nature and immunising properties of rabies virus has continued but the closure of several private laboratories for financial reasons has caused the routine work to press on the bacteriological staff even more heavily than usual and has left all too little time for research.

In the entomological division the principal work undertaken has been the identification of anopheline species and a classification of the rat fleas collected at the ports. Spray insecticides were manufactured and tested on a considerable scale.

In the chemical division 8,629 samples were examined—an increase of 2,270 over the previous year's number. Investigations included work on the identification of firearms and projectiles, the internal corrosion of aluminium radiator heads on motor vehicles and the fluorescence of milk and butter in ultra-violet light. Satisfactory progress has been made in the recently instituted bio-chemical laboratory.

Adequate control over Public Pathological and Bacteriological Laboratories has been now secured by limiting the issue of annually-renewable licences to applicants able to fulfill the special conditions made under Section 7 of the Regulation of Trades and Industries Ordinance of 1927.

An important advance in rabies control has been made by the promulgation of Rabies (Amendment No. 2) Rules, 1931, in which it is laid down that "any dog, cat or monkey, which has bitten a person on more than one occasion shall be placed in a kennel of a Municipal or Local Council and shall be destroyed on completion of ten days' observation".

II. WORK PERFORMED.

The Report will be presented as under:—

A. Bacteriological Division.

1. Routine Diagnosis.
2. Pathological Findings.
3. Public Health Examinations.
4. Medico-Legal Investigations.
5. Anti-Rabies Institute.
6. Calf Lymph Establishment.
7. Vaccines and Sera.
8. Research.
9. Statistical Tables.

The Vaccine Institutes.

B. Entomological Division.

1. Routine Duties.
2. Special Investigations.

C. Chemical Division.

1. Summary of Work Done.
2. Notes on Branches of Work Undertaken.
3. Criminal Investigation.
4. Work for Department of Customs, Excise and Trade.
5. Bio-Chemical Work.
6. Weights and Measures.
7. Special Investigations.
8. Statistical Tables.

A. BACTERIOLOGICAL DIVISION.

1. Routine Diagnosis.

The total number of specimens dealt with during the year amounted to 103,883, of which nearly 20,000 required cultural investigation. The number and nature of the more important examinations performed, together with the findings of greatest interest, are shown in Table I.

(a) Blood Films.

5826 blood films were examined and of the positive findings P. vivax accounted for 415, P. falciparum for 206 and P. malariae 11. Of the total films submitted, therefore, 10.8 per cent. were proved to contain malarial parasites and of that percentage 65.66 were due to the parasite of benign tertian, 32.6 to that of malignant tertian and 1.74 to that of quartan malaria. The relative percentages of 1931 agree with those of 1929 and approximate to those of the decennium 1921-1930, viz., P. vivax 66.6, P. falciparum 31.3, P. malariae 2.1.

The Spironema recurrentis was demonstrated on 19 occasions, Microfilaria bancrofti once, B. anthracis once and Babesia bovis 4 times.

22 cases of Leishmania tropica were diagnosed in smears taken from the cutaneous lesions.

Table II gives the laboratory information concerning malaria during 1931.

(b) Blood Examinations.

This work included 2113 cell enumerations, 1686 estimations of the haemoglobin index and 2016 differential counts. 2557 blood specimens were submitted for culture with the result that the B. typhosus was grown 78 times, B. paratyphosus A 6, B. paratyphosus B 12, Streptococcus pyogenes 6, Staphylococcus p. aureus 4, Str. pneumoniae 19, Br. melitensis 5.

(c) Serological Investigations.

(1) Diagnosis of Syphilis.

The total number of specimens submitted for examination was 4676, of which 735 proved to be positive. The Wassermann Reaction was employed throughout the series (M.R.C. No. 1 Method) but the Kahn Test was also performed on 425 sera.

(2) Agglutination Tests.

The agglutinin content of 10,835 sera was investigated. Positive reactions were obtained in diagnostic dilution with the following organisms:- B. typhosus 677 times, B. paratyphosus A 20, B. paratyphosus B 186, B. parathyphosus C 5, Br. melitensis 42, Br. abortus 15, Proteus vulgaris x19 on 82 occasions. In 44 cases a diagnosis of "enterica—type not differentiated" has been made; in certain instances a more precise opinion cannot be given, viz., (a) when large-flaking agglutinins are entirely absent from the sera of non-vaccinated persons, i.e. in purely small-flaking sera and (b) in enteric infections among the vaccinated population. In the latter cases only small-flaking agglutination occurs if vaccination has been performed some time previously, and even if the type be large-flaking no differentiation is possible if the usual composite prophylactic has been employed.

During the year an opportunity was afforded of studying the effects of a massive (5 c.c.) dose of anti-typhoid vaccine administered inadvertently by a Medical Officer of Health to five patients undergoing courses of anti-rabies treatment. If, as Weber (1916-17) suggests, protection varies directly with the size and dose of vaccine and if, as Weil, Felix et al. (1920, 1924, 1926) believe, in the typhoid-paratyphoid group bactericidal amboceptors and complement-binding immune bodies are identical with the small-flaking, stabilotropic agglutinins, each and/or all owing existence to the stable antigen of the bacteria (O-receptors), considerable O-immune body should have been present. The results proved of interest: in two cases small-flake agglutination was observed in a serum dilution of 1 : 100 with Ty. O 901 to the extent of +(little sediment, flakes in supernatant fluid visible with aplanatic lens of 10 to 20 magnifications), in two cases the agglutination reached ±(agglutination visible in fluid only on similar magnification) and in one case—a typhoid convalescent—the small-flake agglutination was+++(bacteria completely agglutinated and sedimented, supernatant fluid clear. With one exception the cases showed marked large-flaking agglutination with Rawlings strain of B. typhosus, TyR, and with Ty.L—a strain in which the labile receptor is developed much in excess of normal.

(3) Isohaemagglutination.

Blood grouping for purposes of blood transfusion was carried out on 252 occasions. A roster of volunteers proved suitable as "donors" has been prepared and made available for emergency use.

WEBER, R (1916). Zeitschr. f. Hyg. LXXXII, 351. (1917). Ibid. LXXXIV, 425.
WEIL, E. and FELIX A. (1920). Zeitschr. f. Immunitatsf. XXIX, 24.
FELIX, A. (1924). J. Immunol. IX, 115.
FELIX, A. and OLITZKI, L. (1926) Ibid. XI, 31.

(4) Complement-fixation Tests.

(a) Besredka's technique has been followed in respect of 54 sera submitted for the diagnosis or corroboration of existing tuberculosis. Of the 21 positives 5 reactions were marked "strong", 6 "ordinary" and 10 "weak". There were 2 "border-land" results.

(b) Weinberg's test for the detection of echinococcus disease in man has been applied on 21 occasions without positive findings.

(5) Precipitin Reactions.

For differentiation between blood of human origin and blood from other sources over 200 precipitin tests have been made. All precipitating sera required for such differentiation have been prepared in the Central Laboratories.

(d) Faeces.

Microscopic examination was made of 11,073 stool specimens, cultural of 7968.

Of the microscopic examinations the following are the principal findings:—

(1) **Protozoa:** Entamoeba histolytica (free) 196; E. histolytica (cyst) 200; Giardia intestinalis 409, Chilomastix mesnili 49, Trichomonas intestinalis 355.

(2) **Worm Ova:** Nematodes:— Trichuris trichiura 864, Ascaris lumbricoides 784, Ankylostoma duodenale 208, Enterobius vermicularis 55. Cestodes: Taenia saginata 202; Hymenolepis nana 182. Trematodes:— Heterophyes heterophyes 17; Schistosoma mansoni 4.

From the cultural examinations B. typhosus was demonstrated 20 times, paratyphosus B and C on 5 and on 2 occasions respectively, the dysentery organisms 193 times, viz., Flexner-Y in 160 cases, Shiga in 32 and Strong in 1 case.

(e) Urine.

18,929 routine chemical examinations and 15,374 microscopic investigations were carried out during the year. The ova of Schistosoma haematobium were found on 22 occasions. From 2461 catheter specimens the following organisms were isolated: B. coli communis 34 times, B. coli communior 11, B. typhosus 5, B. paratyphosus B 4, B. pyocyaneus 2.

(f) Sputa.

Of 2553 specimens of sputa examined microscopically 492 were found to contain Mycobacterium tuberculosis. The Pneumococcus (Str. pneumoniae) occurred in 36 sputa.

(g) Pharyngeal Swabs.

Nasal and pharyngeal swabs were taken from 3062 patients and contacts. C. diphtheriae was identified on 344 occasions, Vincent's organisms on 49, Mycobact. leprae on 20, Str. haemolyticus on 34. Periodic examination of lepers from the Moravian Hospital in Jerusalem has continued in order that the efficacy of various forms of treatment might be measured.

(h) Urethral Smears.

Of 698 urethral and vaginal discharges examined 147 contained the Neisseria gonorrhoeae.

(i) Cerebro-Spinal Fluid.

Lumbar puncture was made on 140 cases and certain organisms were identified microscopically and/or by cultural methods, viz.: N. meningitidis 12 times, Str. pneumoniae 15 times and the Streptococcus pyogenes, Mycobact. tuberculosis and B. typhosus on 6, 2, and 2 occasions respectively.

(j) Rabies.

As in previous years all investigations for the detection of rabies in animals have been carried out in the Central Laboratories on behalf of the Veterinary Department. During the year 130 brains extracted from suspectedly rabid animals were examined and in 64 Negri bodies were found. The biological test was performed in 25 instances and 14 positive results were obtained.

(k) Miscellaneous.

In conjunctival exudates the causal organism of inflammation proved to be Haem. Koch-Weeks on 19 occasions, the Str. pneumoniae on 6, the Haem. lacunatus on 3 and the N. gonorrhoeae once.

496 specimens of hair were submitted and of that number 119 were infected with Trichophyton and 16 with Favus.

B. anthracis was found in 3 out of the 5 bovine spleens forwarded for examination.

77 samples of gastric juice were investigated and 87 specimens of seminal fluid were examined for viable spermatozoa.

Miscellaneous investigations totalled 3482 and as may be imagined included the widest possible range of laboratory enquiry.

2. Pathological Findings.

In addition to the 64 brain sections demonstrating the presence of Negri-bodies 33 tissues submitted for histological opinion were diagnosed as follows: Carcinoma and Epithelioma 15; Sarcoma 9; Fibroma 3; Granuloma 1; Lipoma 1; Myxoma 1; Rodent Ulcer 3. During an investigation of kidney stones taken from a case of advanced pyonephrosis the interesting discovery of true bone within one renal calculus was made. Bone formation in the pedicle attachment of a renal calculus to the kidney pelvis has once been recorded in American literature by Phemister (1923), who described two such cases, but it is generally agreed that ossification within a kidney stone must be an exceedingly rare condition. The stone under review, which had been shown by X-ray examinations to exist for 6 years prior to the nephrolithotomy, was shaped like an acorn and the cavities occupied by bone in the cup and in the acorn portions of the calculus were one-third and one-half respectively. Chemical analysis proved the stone to consist of calcium oxalate 70—80 per cent. and of phosphate which, if calculated as $Ca_3 P_2 O_8$ amounted to 6 per cent. Histological examination of the bony core showed compact and cancellated osseous tissue both to be present as well as a periosteum-like membrane adjacent to the compact portion; the cancellated bone on high magnification showed numerous capillaries and spaces for fat and marrow cells. Views as to the origin and growth of the calculus were advanced, based as they were on the inference that if proliferating epithelium in contact with ossifying fibrocytes is the explanation of heteroplastic osteogenesis in the kidney of experimental animals, as has been shown by Huggins (1931), then a combination of the same two factors might well be the reason for comparable occurrences in man. In our opinion the origin of the bony nucleus is to be thus explained: an infective or irrigating process, such as may be present in infection of the genito-urinary tract with B. coli or arise in connexion with the kidney stones, first causes a proliferation of the renal pelvic epithelium, which in turn is followed by changes in the connective tissue immediately beneath the pelvic mucosa indicative of a pre-osseous stage. Osteogenesis results somewhat later from a metaplastic transformation of these connective tissue elements, which are fibrillary in type, directly into bone, bone formation first taking place as spicules lying adjacent to the newly formed epithelium. The bone thus formed and situated immediately below the pelvic epithelium fulfils the ordinarily accepted prerequisite of an organic nucleus in calculus formation. On this nucleus there would result a precipitation of calcium salts from an increaed calcium content in the patient's blood. Originally, therefore, the calculus was formed within the renal parenchyma, but, separated as it was from a cavity by only the pelvic epithelium, its tendency on growth would be automatically to seek, by pressure and erosion, entrance into the renal pelvis. On exit from the kidney substance the calculus, tethered, if its nucleus were to be preserved alive, by a vascular pedicle extending between its bony core and the connective tissue of its origin would naturally be added to by further depositions of calcium salts from the urine and take on the form of the calyces in which it was lying. (The case is fully described and the theory of origin advanced in the Journal of Pathology and Bacteriology, No. 3, 1932. under the title "The occurrence of true bone within a renal calculus". (Stuart and Krikorian).

3. Public Health Examinations.

(a) Tuberculosis Enquiry.

A survey of tuberculosis in Palestine was instituted by the Department during 1931 and such pathological material as became available in the course of the enquiry was investigated at the Central Laboratories. Differentiation between human and bovine bacilli was made in accordance with the full scheme suggested in the M.R.C. System of Bacteriology of 1930. In addition to the culture media prescribed therein, however, Petroff's method of cultivation on a medium containing gentian violet was employed as routine and found most useful in inhibiting the growth of "other organisms". Unfortunately for various reasons the survey has been non-continuous and the results, therefore, have been somewhat meagre. The question of the possible spread of tuberculosis by means of the nargili or hubble-bubble mouth piece has, however, been investigated with negative result.

Laboratory investigation in respect of 15 specimens of pathological material submitted for query tuberculous lesions in man showed 4 cases to be infected with Mycobacterium tuberculosis, viz., 3 with the human type of organism, 1 with the bovine. In all 4 cases the growths were eugonic even in the case of the bovine infection, but in the last instance 0.01 mg. of the culture inoculated intravenously into rabbits caused death from generalised tuberculosis in 19 and in 25 days respectively. The somewhat small percentage of positive results was to be explained by the fact that many of the specimens submitted were unsuitable for laboratory investigation; it was found necessary to remark on the uselessness of sending clear straw-coloured effusions to the laboratory as they remain ordinarily negative to smear examination and animal inoculation alike. Up to the present no investigation into the tuberculosis incidence in milk supplies has been considered feasible by the Department.

Phemister (1923). Ann. Surg. 78, 239.
Huggins (1931). Arch. Surg. 22, 377.

(b) Examination of Cheese.

An article of food commonly incriminated as the cause of poisoning, i. e. capable of producing vomiting, diarrhoea etc., has been cheese. During the year many laboratory examinations have been performed on specimens of cheese alleged to have been responsible for outbreaks of food poisoning. In no case has any definite conclusion been reached. Thus whereas copper and other poisonous metals have been proved to be absent, so equally no pathogenic organisms have been isolated. Further, extraction of the cheese with ether for the detection of tyrotoxicon has invariably given negative results, while cold water extracts fed to guineapings after its admixture with bran have produced no ill effects.

(c) Water Examinations.

The number of bacteriological examinations of water supplies has risen during the year from 930 to 1334. Adequate control has thereby been exercised over all public supplies as well as over the products of aerated water factories and ice establishments. The effect of bacteriophage during six months' storage of large bodies of water has been observed.

(d) Milk Examinations.

786 milk samples were examined in order to evaluate their degree of purity. As already stated no investigation has yet been made of tuberculous infection in milk.

(e) Examination of Rats for Plague.

In conjunction with the efforts made to identify the rat fleas of Jaffa and of Haifa 1088 rats have been collected and examined bacteriologically for plague.

(f) Miscellaneous Investigations.

In accordance with the custom instituted in 1920 examination has been made during 1930 of 191 shaving brushes, i. e. 5 per cent. of all consignments imported.

As in previous years sterility tests have been applied to all imported vaccines and sera prior to their release from Customs.

Search has continued in the districts for new foci of infection with Schistosomiasis. All snails collected during the search have been forwarded to the Central Laboratories for dissection and opinion. Isodora truncata was discovered in the Wadi Moveilla.

Snakes forwarded for identification during the year have been found to belong to the species indicated: Zamenis ravergieri (2), Eryx jaculus (1), Psammophis moniliger v. hierosolymitana (1), Vipera euphratica (Martin), Vipera confluenta (Cope), Vipera xanthina vel Zantina (Gray) (1 each).

4. Medico-Legal Investigations.

During 1931 the Central Laboratories continued to play their customary part in the scientific detection of crime. As usual enquiries were conducted mainly into the nature of stains on clothing and weapons and into the identification of hairs, of material expelled from the uterus and of bones discovered under suspicious circumstances — all in connexion with charges of murder, violence, rape, sodomy or criminal abortion. In the Chemical Division the work undertaken dealt with crimes such as poisoning, shooting, counterfeiting, forgery, burglary. arson, drug trafficking and tree cutting; this branch will be detailed in the 3rd portion of this Report.

In the Bacteriological Division 52 cases were investigated and 249 police exhibits examined and pronounced upon.

The following analysis of the work done will best illustrate its scope and variety:

Type of Exibit	Reason for Examination	Number of Articles Investigated
Blood-stained articles	Determination of origin of blood	201
Blood-stained garments	Ascertainment of blood-group	113
Suspicious stains on clothing	Tests for presence of spermatozoa	114
Hairs	Differentiation between human and animal	52
Bones	Identification	22
Uterine contents	Decision as to nature and type	5

During these investigations certain points of interest emerged :—

(a) Determination of Origin of Blood.

The following tests have been applied in routine examinations: benzidine (as preliminary), Teichmann's haemin crystal, spectroscopic and, where possible, microscopic (as confirmatory); finally the precipitin test to decide the species of animal from which the blood originated. During the course of a lengthy investigation into a case where considerable decomposition of the stains on the clothing had occurred it was found that putrefaction definitely interfered with the performance of the biological test and this observation on the limitation imposed on the utility of the precipitin reaction by a considerable putrefaction has since been upheld by experiment in the laboratories.

(b) Ascertainment of Blood Groups.

Experience has shown that, in order to obtain a representative specimen of the blood stain which will admit of blood-grouping, the extract must be made with distilled water and not with physiological salt solution. Much work has been done along this line during 1931 and it is unquestionable that blood-grouping frequently fails completely with extracts made with N.S.S. while it is constantly obtained with distilled water extract, provided that the ultimate concentration does not fall below 1 : 5.

(c) Suspicious Stains on Clothing.

The Florence test has been applied to each 0.5 per cent. acetic acid extract of stain before microscopic examination. The two procedures have proved constant in agreement. It has not been found neccessary to employ spermato-precipitins in identifying the source of seminal fluid.

(d) Differentiation Between Human and Animal Hairs.

In seven murder cases the medico-legal examination of hairs has proved of importance. In four of the cases the hairs were shown to be human, in three cases to be animal—two from a horse and one from a rat.

(e) Bones.

In connection with a case of the disappearance from a village of a child six years of age, 22 bones (ribs and vertebrae) were forwarded to the Central Laboratories for the purpose of confirming the previously-expressed medico-legal opinion that the bones were human and belonged to a boy six years old. The bones were identified as those of a young goat.

(f) Uterine Contents.

In two cases the age of a foetus was determined and in three instances material expelled from the uterus was shown to be embryonic in nature.

Expert evidence by members of the bacteriological staff has been given before the Courts on many occasions.

5. Anti-Rabies Institute.

(a) General.

The anti-rabies vaccine used by the Department and prepared at the Anti-Rabies Institute—part of the Central Laboratories—has since 1923 been a modification of Semple's original carbolised virus. For reasons of economy and utilitarianism alike the policy of complete decentralisation of treatment has been continuously followed with the result that during 1931 the number of treatment centres established in the provinces amounted to 24. Government now has facilities for Pasteurian treatment at Jerusalem, Jaffa, Haifa, Ramle, Gaza, Beersheba, Hebron, Acre, Tulkarem, Nazareth, Jenin, Nablus, Safad and Tiberias, while the Qupat Cholim, an organisation for the relief of sickness among Jewish labourers, and deriving its anti-rabies supplies from the Central Laboratories, maintains centres at Tel-Aviv, Petah Tiqva, Kfar Sava, Herzelia, Nes-Tsiyona, Rehovot, Haifa, Hadera, Affula and Nahalal. Issues of the same vaccine have also been made to Trans-Jordan and to the Royal Air Force and Army stationed in Palestine. The Central Laboratories, therefore, continue to be responsible for the manufacture and issue of all the anti-rabies vaccine required for Palestine and Trans-Jordan and, by acting as the Jerusalem treatment station, serve also to control the efficacy of the product.

During 1931 over 130,000 c.c. of carbolised vaccine were prepared and 129,690 c.c. issued; these figures show an increase over those of 1930, when 109,680 c.c. were manufactured and 100,620 distributed. In all 1461 bitten persons received treatment, an increase of 211 over 1930. Evidence has been accumulating to predict an epizootic during 1932 and advice has already been given that the sternest measures of control should be applied during that year.

(b) Results of Anti-Rabies Treatment.

Table III furnishes a record of the number of bitten persons treated during 1931 at the 24 anti-rabies centres supplied with the carbolised virus prepared and issued by the Central Laboratories. During the year 6 cases of hydrophobia occurred, 3 despite specific treatment. According to conventional standards all 3 cases, which did not benefit from the anti-rabies inoculations, belonged to the category of "failures of treatment". Two of these cases, from the appearance of symptoms in the one 12 months after the date of injection and in the other 4 months after mere contact with the saliva of a herbivorous animal, were considered to be of sufficient interest and rarity to merit description and discussion elsewhere. An explanation of the protracted period of incubation in the first case was sought in a latency of virus; it would appear that the virus may remain latent in the nerve centres for long periods of time and may thereafter be brought into activity by secondary influences such as trauma, cephalitis, emotion, chill etc., and thus the cause of onset of symptoms in the instance cited could be ascribed to an undoubted shock to the patient's nervous system given by the unexpected appearance of a snake. In respect of the second case, it is generally held that rabies cannot be conveyed by bites of rabid herbivora and this contention has received support from the statistics published by McKendrick in his "Analytical Review" (1930). The possible occurrence of hydrophobia, therefore, after contact with the saliva of a rabid calf seems to permit of but one answer to the question raised at the International Rabies Conference of 1927: "Do you recommend vaccination in the case of a person who has run the risk of infection only by having the skin contaminated with the saliva of a rabid animal?".

Below will be found information tabulated in respect of the 6 deaths from hydrophobia during 1931.

Number of Case	Sex	Age	WOUNDS (None Efficiently Cauterised)			Biting Animal	In days	
			No.	Location	Gravity		Period of Incubation of Hydrophobia	Duration of Symptoms
1 (T)	M	30	1	R. ear	Severe	Dog	365	3
2 (T)	F	13	3	L. foot (bare)	Slight	Jackal	83	5
3 (T)	F	30	1	Orbit	Severe	Jackal	60	1
4 (N)	M	30	1	R. hand (bare)	Medium	Dog	50	2
5 (N)	M	60	?	?	?	?	?	2 *
6 (N)	M	48	0	0	0	Calf	123	3

Notes: (T) = treated. (N) = untreated.

* Diagnosis of hydrophobia based on subdural inoculation of rabbits with brain substance. Incubation periods = 14 and 15 days.

Treatment in all 3 cases began on the day following the bite.

No neuro-paralytic accident of treatment occurred.

From the results shown in Table III it will be observed that 1,461 bitten persons received treatment with carbolised virus and of this number 3 died of hydrophobia (0.2 per cent.) more than 15 days after completion of treatment. In addition, however, to these results it is necessary to refer to 239 cases of animal bite treated at Jerusalem, Tel-Aviv, Haifa and Zikhron Ya'aqov with vaccine issued by a private laboratory in Jerusalem. The vaccine was a modification of that used in the original Pasteurian treatment. No deaths were reported among this series.

(c) Occurrence of Rabies in Animals.

71 cases of rabies among animals occurred during 1931, particulars regarding the biting species and the localities in which they were reported being published in the monthly Veterinary Bulletins of the Derpartment of Agriculture. The period of greatest incidence was from September to December when 37 cases were recorded, while the months of maximum occurrence were September and November each with 10 cases. The figures for October and December were 8 and 9 respectively. The animals affected were 45 dogs, 12 cats, 4 jackals, 5 ruminants, 5 solipeds. Of animal rabies in Palestine during 1931, therefore, dogs accounted for 63.38 per cent., cats for 17, jackals for 5.63. Of the 5 cases of hydrophobia, however, concerning which reliable information was available, dogs were responsible for 2, jackals for 2, ruminants for 1. In the Central Laboratories 130 brains extracted from suspectedly rabid animals were subjected to histological examination and in 64 of these were Negri bodies demonstrated. In 25 special cases, where diagnosis was of more than usual importance, biological tests were performed with 14 positive results.

18 animals bitten by suspectedly rabid animals were treated with a 5 per cent. suspension of carbolised virus prepared at the Central Laboratories. The scheme of dosage followed is given below:

Animal	Scheme of Dosage in Cubic Centimetres						
	1st day	2nd day	3rd day	4th day	5th day	6th day	7th day
Sheep	2	2	2	2	4	-	-
Goats	2	2	2	2	4	-	-
Swine	2	2	2	2	4	-	-
Donkeys	3	3	3	3	5	5	-
Mules	3	3	4	5	5	5	5
Camels	4	4	5	5	5	5	5
Bovines	4	4	5	5	5	5	5
Horses	4	4	5	5	5	5	5

Results obtained from the employment of the vaccine in the dosage indicated have been satisfactory, but the paucity of numbers treated permits no useful opinion yet as to the value of what, after all, is a largely empirical scheme of treatment.

Information as to the animals treated and the species responsible follows:—

4 horses, 3 cows, 1 donkey in contact with a rabid donkey.
1 camel bitten in upper lip by rabid jackal.
1 calf, 1 donkey bitten on nose and mouth by rabid dog.
1 cow without wound, 1 cow wounded on head and neck by rabid dog.
1 horse with 4 wounds on head and neck inflicted by camel.
3 cows and 1 mule each wounded slightly on leg by rabid dog.

(d) Prophylactic Inoculation of Dogs.

The single dose injection of 1 c.c. of a 20 per cent. suspension of carbolised killed fixed virus has been superseded by 3 injections on succeeding days of 2 c.c. of a 5 per cent. suspension. Little advantage has been taken of this method of securing protection for domestic animals, but this is doubtless due to the fact that no legislation now requires the application of such protective measures to areas declared rabies-infected.

(e) Measures of Control.

Apart from the benefit derived from improved legislation, satisfactory control has been largely attained by an anti-rabies campaign against Carnovora Vera which has been waged unremittingly throughout the year. The success of the campaign is reflected in Table V and has been achieved by the hearty cooperation between the responsible Departments—Police, Agriculture and Health—and the Municipalities. Table V has been compiled by the Chief Veterinary Officer.

6. The Calf Lymph Establishment.

(a) General.

In order that an adequate supply of small-pox vaccine might be assured for the routine and probable epidemic needs of Palestine and Trans-Jordan for 1931, work was continued at the Calf Lymph Establishment during the period January to April inclusive, when a total dosage of 591,400 units was produced and placed in cold storage along with the 120,000 doses remaining over from 1930.

General distribution of calf lymph from the Central Laboratories was, in accordance with precedent, effected only after it had been proved to be bacteriologically free from extraneous organisms and when suitable tests had proved its 100 per cent. potency.

The effect of the anti-variolous measures rigorously observed in Palestine for a considerable period has been two-fold:—(a) a population extraordinarily well-protected against small-pox—there has been no case in Palestine for over three years, despite the presence of the disease in epidemic form on all land frontiers of the country and (b) a total absence of the unpleasant sequelae reported as occurring elsewhere from time to time after vaccination. Moreover the policy has always been since 1923 when the Calf Lymph Establishment was first opened to guard against epidemic by holding in reserve one year's complete stock and this policy has been fully justified during the past eight years.

(b) Cost of Calf Lymph Production During 1931.

1. Statement of Manufacture.

Number of calves purchased	53
Number of calves successfully vaccinated	53
Number of grammes of pulp collected	2957
Average number of grammes per calf	55.6
Number of doses produced	591,400

2. Statement of Costs.

	Expenditure.	
	LP. Mils.	LP. Mils.
Price of 53 calves	180.250	
Forage, stabling etc.	52.870	233.120
	Revenue.	
Sale of carcases	107.480	107.480
Actual cost		125.645

(c) Remarks.

(1) Production of 591,400 doses of calf lymph during 1931 has cost Government LP. 125.646 in material expended. Cost of laboratory personnel has not been included as the staff of the Bacteriological Division was in no way increased in 1923 when calf lymph production was first undertaken.

(2) The actual cost per dose of calf lymph prepared in 1931 has been 0.05d., i.e. from 5 to 10 times less than the normal cost for a similar preparation.

(3) The technique in force here has permitted the yield per calf to average 55.6 grammes, although it is commonly enunciated that only 12 grammes should be achieved if full potency is to be attained. This view has been disproved, however, by the result of Palestine's primary vaccinations. Figures for 1931 have shown that of the 45,884 primary vaccinations performed, 43,508 or 94.8 per cent. were successful. During 1930 the successful insertion rate was 93.8 per cent., i. e. 37,898 among 40,395; during 1929 it was 94.6 i. e. 36,016 among 38,158. This satisfactory result is all the more remarkable when consideration is given to the many adverse conditions under which district vaccinators work while on tour.

(4) No case of post-vaccinal encephalitis has been reported although 666,248 vaccinations have now been carried out with the lymph produced in the Central Laboratories.

(5) Adequate legislation, fully potent vaccine lymph, enthusiasm of the inhabitants for vaccination together with an absence of anti-vaccinationists have combined to free Palestine from the scourge of small-pox.

(6) The vaccine produced at the Government Lymph Establishment has been for Palestine prophylactic and a sure shield.

(7) An account of the anti-variolous measures in force throughout the country and the technique employed in calf lymph production has been given in the Annals of Tropical Medicine, Vol. 24, pp. 527-544, 1930 (Stuart and Krikorian).

7. Vaccines and Sera.

(a) Vaccines.

The Bacteriological Division of the Central Laboratories was, as in previous years, responsible for the preparation of all other prophylactic and curative vaccines required in Palestine. Below will be found a statement showing the quantities of vaccines prepared and issued during 1931.

Nature of Vaccine	Total Dosage Manufactured (doses or c.c.)	Total Dosage Issued (doses or c.c.)
Small-pox lymph	591,400	124,043
Anti-rabies vaccine	129,690	129,690
Anti-entercia vaccine	63,000	45,060
Anti-cholera	65,000	6,060
Anti-plague	1,000	330
Autogenous	10,800	10,800
TOTAL	860,890	315,983

Epidemics of the enterica threatened at Jerusalem (204 cases), Jaffa (146), Haifa (214), Nazareth (190) and Nablus (99), necessitating issues of anti-enterica vaccines totaling 45,060 c.c. In connexion with the Nablus campaign 4,500 doses were issued within a fortnight. During the year, on account of the serious cholera epidemic which raged in Iraq and on account of the more than ordinary liability of Palestine from its unique position on the great pilgrim routes to become the seat of outbreak, it was considered advisable to produce 65,000 c.c. of anti-cholera vaccine and to make arrangements for its large-scale production should necessity arise.

360 autogenous vaccines were produced in respect of patients suffering from furunculosis, genito-urinary diseases, acne and sinus troubles.

(b) **Sera.**

As in previous years considerable quantities of sera were prepared in the Central Laboratories. No attempt has been made to manufacture therapeutic sera, as the size of Palestine would render such attempt an uneconomic proposition. The various agglutinating, haemolytic and precipitating sera, however, used in diagnosis of the ordinary diseases, in the Wassermann Reaction and in medico-legal cases were prepared. Large numbers of ampoules also were filled with Groups II and III sera taken from volunteers and stored for future use in the grouping of donors in blood transfusion and in medico-legal investigations connected with cases of disputed paternity and of murder, rape and the like.

8. **Research.**

(a) **Studies in Anti-Rabies Immunisation.**

(1) A strain of street virus of exalted virulence (Safad strain) was thoroughly investigated. Seven persons were bitten by a rabid jackal and three, in spite of treatment, developed rabies. The incubation periods of the three fatal cases were respectively 17 days (one wound: deep: in face) 29 days (two: deep: face) and 37 days (one: deep: head). Treatment was commenced in each case two days after the bite was inflicted. The Safad virus was compared with fixed virus (Paris) and a strain of street virus from Jaffa. Minimal lethal dose defined as "the highest dilution of a virus which, in rabbits of average weight (1400 g.) will invariably produce symptoms in the same period of time after subdural infection with 0.2 c.c." proved to be a dilution of 1:1000 in the case of each of the three viruses. Negri bodies were present in the human brain from which the virus was derived but were not found in the brains of any of the rabbits of a sub-passage series. The Safad street virus caused illness in 7 days and death in 8 days on primary transfer to rabbits. It was classified as an exalted virus because it was "characterised by high degree of infectivity, by abnormally short incubation period and duration of illness, by complete mutation or fixation at the first passage in rabbits and by a behaviour thereafter in all respects akin to fixed virus, including an inability to effect Negri body formation". Cross-immunity experiments were carried out between Paris fixed virus and Safad virus. The Paris virus afforded 100 per cent. protection against the homologous strain and 60 per cent. against the Safad strain. Also sera of rabbits treated with Paris virus neutralised 6 volumes of a 1 per cent. suspension of the homologous strain and 4 volumes of the Safad strain. Again vaccination with the Safad virus afforded 40 per cent. protection against the homologous strain and 20 per cent. against the Paris strain. Finally sera from a rabbit treated with Safad virus neutralised 2 volumes of the homologous virus and one volume of the Paris strain.

As a result of cross-protection tests and crossed serum reactions, therefore, identity of exalted virus with classical strains has been established and the employment of autogenous and polyvalent vaccines in anti-rabies immunisation has been shown to be unnecessary.

(2) The degree of antibody production after treatment with living fixed virus, killed carbolised fixed virus and killed fixed virus was estimated. The amount of brain substance inoculated was in each case 1.4 g., given over a period of 14 days. The maximum power of neutralisation was, in the case of living fixed virus, 1 volume of serum to 16 volumes of a 1 per cent. suspension of fixed virus; the proportion in the case of killed virus was 1 to 8 volumes and in the case of etherised vaccine it was 1 to 24 volumes. The times of earliest appearance were, in the same order, 18 days after commencement of treatment, 18 days and 14 days. The maxima occurred in all the three types between the 50th and 60th day after completion of treatment. The periods of retention of rabicidal properties were 222 days, 131 days and 226 days. The conclusion was reached, therefore, that in the immune sera of rabbits treated with killed etherised fixed virus, antibodies make an earlier appearance, are present in greater degree and persist for a longer time than in the sera of rabbits treated with equal quantities by weight of fresh fixed or of killed carbolised virus.

In connexion with this subject a complementary series of experiments was undertaken to determine if possible whether the rabicidal antibody content of the blood of rabbits treated by the three methods affords a true index of the degree of their immunity to rabies virus. From the results obtained it was shown that whereas the rabicidal antibody content after three different courses of anti-rabies treatment was respectively 3—(etherised), 2—(fresh-fixed) and 1—fold (carbolised), the corresponding degrees of immunity conferred were in the relative proportions of 1.2, 1 and 1.

It was then concluded that a practically identical degree of anti-rabies immunity can be secured by the exhibition of equal quantities by weight of etherised virus, fresh-fixed virus or carbolised virus over equal periods of time. Again, although, in general, some indication of anti-rabies immunity is afforded in treated rabbits by the rabicidal antibody content of their blood, no mathematical relationship can be established.

(b) Enquiry into the Serological Relationship between Rabies and Typhus Fever.

Undertaken at the request of the Colonial Medical Research Committee, this enquiry, which necessitated considerable animal experimentation, and which was unavoidably protracted on account of the comparative rarity of hydrophobia cases nowadays in Palestine, gave results which were quite conclusive. The investigation included the following studies:- the Weil Felix reaction in typhus fever: (a) in the diagnosis of human cases, (b) in the experimental disease in guineapigs and (c) in the experimental disease in rabbits; the Weil-Felix reaction in rabies: (a) in cases of hydrophobia and in persons immunised against rabies virus and (b) in the sera of guineapigs and rabbits suffering from street—and fixed-virus infections and in the sera of such animals not infected with rabies virus but rendered by treatment immune thereto.

In respect of the five human cases of hydrophobia investigated, not one possessed any significant X19 agglutinins, while rabicidal antibodies were absent from the sera when tests for its detection were made in accordance with ordinary technique. (Two cases, however, gave sera of which 0.5 c.c. proved capable of neutralising 0.125 c.c. of a 1 : 1000 suspension of fixed virus in normal saline solution).

Conclusions based on the results of the enquiry may be briefly summarised:—

(1) Cases of typhus fever showing marked bulbar symptoms early in the disease may simulate hydrophobia and cause errors in clinical diagnosis.

(2) Results obtained from laboratory investigations made into the typhus- and rabies-infections of man and of experimental animals prove a complete absence of serological relationship between the two diseases.

(3) The Weil-Felix reaction, usually positive about the fifth day of the disease is the most constant feature of typhus fever in man, cases of typhus siderans only excepted.

(4) In the fact that O-agglutinins for Proteus vulgaris X19 may persist for years after an attack of typhus fever and be present in serum dilutions commonly regarded as diagnostic lies the sole possibility of serological confusion in the differential diagnosis of typhus.

PUBLICATIONS.

In connexion with the work described in this Report the undermentioned articles have been prepared and accepted for publication :—

Further studies in anti-rabies immunisation. Rabies Virus—Exalted and classical strains compared. *Jl. Hygiene. 1931.* October. Vol. 31. No. 4. pp. 523—542.

Appearance and persistence in rabbits' blood of rabicidal antibodies produced by various methods of anti-rabies immunisation. *Jl. Hygiene. 1931.* July. Vol. 31. No. 3. pp. 414—422.

Anti-rabies immunisation. Value of killed carbolised virus in cases of wolf bite. *Trans. Roy. Soc. Trop. Medicine. 1931.* June. Vol. 25. No. 1. pp. 49—56.

Rabies v. Typhus. *In the Press.*

Unusual development of rabies symptoms in man: *In the Press.*

The rabicidal antibody content of rabbit immune serum as an index of acquired resistance to rabies infection. *In the Press.*

The occurrence of true bone within a renal calculus. *In the Press.*

All the articles have been written by Drs. G. Stuart and K. S. Krikorian.

TABLE I.

RECORD OF BACTERIOLOGICAL EXAMINATIONS PERFORMED DURING 1931.

Nature of Specimens	Total Examinations	Nature and Number of Positive Findings	
Blood Films	5,826	P. vivax	415
		P. malariae	11
		P. falciparum	206
		Sp. recurrentis	19
		Microfilaria bancrofti	1
Blood Cultures	2,557	Bact. typhosum	78
		Bact. paratyphosum A	6
		Bact. paratyphosum B	12
		Bact. paratyphosum C	1
		Staphylococcus	6
		Streptococcus	4
		Br. melitensis	5
		Str. pneumoniae	7
Cell Enumerations	2,113		
Haemoglobin Index	1,686		
Differential Counts	2,016		
Histological Sections	163	Negri bodies	64
		New growths	33
Water Analysis	1,334	—	—
Milk Analysis	786	—	—
Serum Reactions			
(a) Diagnosis of Syphilis	4,676	Wassermann Reaction	735
		Kahn Test	46
(b) Agglutinations	10,835	Bact. typhosum	677
		Bact. paratyphosum A	20
		Bact. paratyphosum B	186
		Bact. paratyphosum C	5
		Br. melitensis	42
		Proteus X 19	82
(c) Isohaemagglutination	252		
(d) Complement-Fixation Tests			
Besredka's	54	Positive tuberculosis	21
Weinberg's	21	Echinococcus	0
(e) Precipitin Reactions	201	Human blood	113
Sputa	2,553	Myco. tuberculosis	492
		Str. pneumoniae	36
Rats for Plague	1,088	B. pestis	0
Pharyngeal Swabs, including Naso-pharyngeal and Nasal	3,062	C. diphtheriae	344
		Myco. leprae	20
		Vincent's angina	49
		Str. haemolyticus	34
Faeces			
(a) Microscopic Examination	11,073	E. histolytica (free)	196
		E. histolytica (cyst)	200
		Giardia intestinalis	409
		Chilomastix Mesnili	49
		Trichomonas intestinalis	355
		WORM OVA:	
		Ascaris lumbricoides	784
		Trichuris trichiura	864
		Enterobius vermicularis	55
		A. duodenale	208
		S. mansoni	4
		T. saginata	202
		Hymenolepis nana	182
		Heterophyes heterophyes	17
(b) Cultural Examination	7.968	Bact. typhosum	20
		Bact. paratyphosum B	5
		Bact. dysenteriae Shiga	32
		Bact. dysenteriae Flexner-Y	160
		Bact. dysenteriae Strong	1
Urines			
(a) Microscopic	15,374	S. haematobium	22
(b) Bacteriological	2,461	Bact. typhosum	5
		Bact. coli	34
		Bact. coli communior	11
		Bact. paratyphosum B	4
		B. pyocyaneus	2
(c) Chemical	18,929		

Nature of Specimens	Total Examinations	Nature and Number of Positive Findings	
Rabies			
(a) Microscopic Examination	130	Negri Bodies	64
(b) Biological Tests	25	Positive	14
Urethral Smears	698	N. gonorrhoeae	147
TRANSUDATES AND EXUDATES			
(a) Abscess pus	890	Pyogenic organisms	673
(b) Conjunctival exudates	74	Haem.Koch-Weeks	19
		Haem.lacunatus	3
(c) Cyst fluids	55		
(d) Lumbar puncture	140	N.meningitidis	12
		Str. pneumoniae	15
		Str. pyogenes	6
		Mycobact. tuberculosis	2
		Bact. typhosum	2
(e) Syphilitic	5	Spironema pallidum	5
Shaving Brushes for Anthrax	119	B. anthracis	0
Other Examinations etc.	3,482		
Auto-vaccines	236		
Gastric juice	77		
Smears	180	L. tropica	22
Hair	496	Trichophyton	119
		Favus	16
Seminal fluid	87	Living spermatozoa	32
Stools for occult blood	37	Blood	21
Tests for blood: spectroscopic	803		

TABLE II.

LABORATORY FINDINGS IN MALARIA—1931.

From 5826 Examinations.

Type and Locality	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Total	Yearly
BENIGN TERTIAN MALARIA														
Jerusalem	7	4	8	4	8	17	24	40	20	11	9	5	157	
Jaffa	21	15	4	10	5	10	28	15	9	6	1	10	134	
Haifa	13	10	12	9	3	7	7	20	8	3	7	5	104	
Safad-Tiberias	15	4	1	—	—	—	—	—	—	—	—	—	20	
Total recorded	56	33	25	23	16	34	59	75	37	20	17	20	Total	415
MALIGNANT TERTIAN MALARIA														
Jerusalem	5	2	—	1	—	2	8	4	27	20	8	3	80	
Jaffa	7	—	—	2	2	1	10	13	10	5	8	4	62	
Haifa	5	1	3	—	1	1	9	7	3	7	4	6	47	
Safad-Tiberias	12	5	—	—	—	—	—	—	—	—	—	—	17	
Total recorded	29	8	3	3	3	4	27	24	40	32	20	13	Total	206
QUARTAN MALARIA														
Jerusalem	—	—	—	—	1	—	—	—	2	—	—	—	3	
Jaffa	1	1	1	—	—	—	—	—	—	—	—	—	3	
Haifa	—	—	—	—	—	—	2	—	—	—	—	—	2	
Safad-Tiberias	—	—	—	—	1	2	—	—	—	—	—	—	3	
Total recorded	1	1	1	—	2	2	2	—	2	—	—	—	Total	11
Total Monthly Findings (all forms)	86	42	29	26	21	40	88	99	79	52	37	33	Yearly	632

TABLE III.

ANTI-RABIES INSTITUTE STATISTICS.

January 1st to December 31st, 1931.

Number of bitten persons treated at the 24 Anti-Rabies Centres.	1461
Number of interrupted or unnecessary courses of treatment— biting animals remaining well after a period of 10 days' observation.	521
Number of treatments carried out regularly and completely.	940
Cases of hydrophobia occurring after 15 days of the completion of treatment i. e. failures.	3
Total mortality rate.	0.32
Failure rate.	0.32

2. Classification of bitten persons according to species of biting animal:—

Dogs	630	Solipeds	1
Cats	137	Ruminants	39
Jackals	16	Other animals	117

3. Classification according to condition of biting animal:—

A. Rabid by laboratory tests.	127
B. Rabid clinically.	32
C. Suspected of rabies by altered behaviour.	217
D. Unknown (no information available)	564
(E. Healthy (after 10 days observation)	521)

4. Classification according to location of bite:—

Head and Face.	52
Upper Extremity.	400
Lower Extremity.	458
Body.	30

5. Classification according to severity of bite:—

Severe.	193
Slight.	747

6. Interposition of clothing:—

On naked skin.	700
Through clothing.	240

7. Whether cauterized or not within 1/2 hour after bite:—

Cauterized.	53
Not cauterized.	887

8. Number of days after bite or contact when treatment was begun:—

0— 4	784
5— 7	83
8— 14	53
15— 21	19
Over 21	1

9. Occurrence of paralytic accident:— NIL.

TABLE IV.

YEARLY STATEMENT OF RABIES AND ITS CONTROL IN PALESTINE DURING 1931.

Centre for Treatment	Bitten Persons		Biting Animals																														
			Specification															Total Number of Animals	Condition					Disposal									
																			Definitely rabid					Killed				Ran away				Kept under Observation	
	Number applying for advice and aid	Number actually treated	Cows	Mole	Cats	Dogs	Monkeys	Jackals	Horses	Donkeys	Camels	Rabbits	Sheep	Panther	Hyena	Rats	Unknown		By laboratory investigation	Clinically	Suspected rabid	Healthy	No information available	Rabid	Suspected	Healthy	No information available	Rabid	Suspected	Healthy	No information available	Died within 10 days	Remained healthy
Jerusalem	178	178	—	—	33	120	—	—	7	6	1	—	1	—	1	1	2	172	3	—	3	97	69	2	2	—	—	—	—	—	69	2	97
Jaffa	343	343	1	1	47	197	—	5	8	2	—	1	—	—	—	16	3	281	10	5	25	112	129	8	17	—	—	—	4	—	129	11	112
Haifa*	220	220	1	—	33	141	3	—	2	8	—	1	—	—	—	14	—	203	6	—	19	93	85	3	13	—	—	—	2	—	85	7	93
Ramle	54	54	—	—	—	42	—	2	—	1	—	—	—	—	—	—	5	50	2	—	1	6	41	2	—	—	—	—	1	—	41	—	6
Gaza	49	49	—	—	2	33	—	1	2	—	5	—	—	—	—	—	3	46	1	1	3	16	25	2	1	—	—	—	2	—	25	—	16
Beersheba	10	10	—	—	—	5	—	—	2	—	—	—	—	—	—	—	—	7	1	—	—	1	5	1	—	—	—	—	—	—	5	—	1
Hebron	12	12	—	—	—	12	—	—	—	—	—	—	—	—	—	—	—	12	1	—	3	3	5	1	3	—	—	—	—	—	5	—	3
Acre	5	5	—	—	—	1	—	—	1	—	—	—	—	1	—	—	1	4	—	—	2	1	1	—	2	—	—	—	—	—	1	—	1
Tulkarem	31	31	—	—	—	22	—	—	—	1	—	—	—	—	—	—	—	23	1	—	12	4	6	1	10	—	—	—	1	—	6	1	4
Nazareth	23	23	—	—	—	17	—	—	—	—	—	—	—	—	—	—	1	18	1	—	7	6	4	1	4	—	—	—	—	—	4	3	6
Jenin	51	51	—	—	2	27	—	1	2	—	—	—	—	—	—	—	—	32	1	3	15	2	11	4	10	—	—	—	5	—	11	—	2
Nablus	63	63	—	—	2	43	—	1	1	3	—	—	—	—	—	1	3	54	—	1	2	17	34	1	2	—	—	—	—	—	34	—	17
Safad	33	33	—	—	5	21	—	1	2	—	—	—	—	—	—	—	1	30	3	—	1	9	17	3	1	—	—	—	—	—	17	—	9
Tiberias	60	60	—	—	8	40	—	—	3	—	—	—	—	—	—	2	2	55	3	—	4	19	29	3	4	—	—	—	—	—	29	—	19
Tel-Aviv	102	102	—	—	22	67	—	—	4	—	1	1	—	—	—	7	—	102	1	—	6	51	44	1	4	—	—	—	—	—	44	2	51
Petah Tiqva'	75	75	1	—	12	31	—	—	1	6	—	—	—	—	—	1	—	52	5	—	5	14	28	4	5	—	—	—	—	—	28	1	14
Kefar Sava	45	45	—	—	2	12	—	—	1	—	—	—	—	—	—	—	—	15	2	—	4	3	6	2	4	—	—	—	—	—	6	—	3
Herzelia	3	3	—	—	—	3	—	—	—	—	—	—	—	—	—	—	—	3	—	—	—	1	2	—	—	—	—	—	—	—	2	—	1
Nes Tsiyona	8	8	—	—	3	5	—	—	—	—	—	—	—	—	—	—	—	8	—	—	1	4	3	—	1	—	—	—	—	—	3	—	4
Rehovot	35	35	—	—	1	30	—	—	—	1	—	—	—	—	—	2	1	35	—	—	—	20	15	—	—	—	—	—	—	—	15	—	20
Hadera	45	45	4	—	6	11	—	—	1	1	—	—	—	—	—	2	1	26	3	—	9	5	9	2	6	—	—	—	—	—	9	4	5
Affula	6	6	—	—	—	3	—	—	—	—	—	—	—	—	—	—	—	3	1	—	1	—	1	1	1	—	—	—	—	—	1	—	—
Nahalal	10	10	—	—	1	8	—	—	—	—	—	—	—	—	—	—	—	9	—	—	1	2	6	—	1	—	—	—	—	—	6	—	2
TOTAL	1461	1461	7	1	179	891	3	11	37	29	7	3	1	1	1	46	23	1240	45	10	124	486	575	42	91	—	—	—	15	—	575	31	486

* Two centres.

TABLE V.

CONTROL OF RABIES.

DESTRUCTION OF DOGS, CATS AND JACKALS.

1st January to 31st December, 1931.

Sub-District.	Municipal and Local Council Areas.		Rural Areas.			
	Dogs	Others	Dogs	Jackals	Others	Total
Jerusalem	1869	49 cats	420	—	15 cats	2353
Ramallah	47	—	251	—	—	298
Bethlehem	126	—	—	—	—	126
Jericho	—	—	13	—	—	13
Hebron	80	—	172	—	—	252
Jaffa	3559	1775 cats	983	39	9 cats	6365
Gaza	708	1 cat	1106	—	—	1815
Beersheba	186	—	46	—	—	232
Nablus	35	—	618	—	—	653
Jenin	84	1 cat	1145	—	—	1230
Tulkarem	—	—	490	—	—	490
Haifa	924	11 cats	1269	117	5 hyenas	2326
Acre	—	—	906	—	—	906
Tiberias	238	—	310	—	—	548
Nazareth	336	—	516	—	1 cat	853
Baisan	62	—	354	—	—	416
Safad	75	—	437	—	—	512
Various	1993	85 cats	—	—	—	2078
TOTAL	8329	1837	9036	156	30	21466

SUMMARY:		
	Dogs —	19,358
	Cats —	1,947
	Jackals —	156
	Hyenas —	5
		21,466

B. Entomological Division.

The duties of the Medical Entomologist and his staff included laboratory and field work but reference in this section of the Report will be made to the laboratory work only.

1. Routine Duties.

Identification and classification of insects collected by the entomologist and departmental personnel or submitted from other sources formed the routine work of the laboratory. Identification was made of anopheline and culicine mosquitoes in their aquatic and winged stages, of other diptera such as Musca, Fannia, Calliphora, Lucilia, Chrysomyia, Sarcophaga, Tabanus, Chrysops and Stomoxys and of the Siphonaptera infesting the rats caught at the ports of Jaffa and Haifa.

A key to the rat fleas of Palestine was prepared and the following identification established: Xenopsylla cheopis, Ceratophyllus fasciatus, Leptopsylla segnis. Ctenocephalus and Pulex irritans.

Of the anopheline larvae and mosquitoes identified all were of the already well-known Palestinian species, keys and charts to which have been available since 1922.

2. Special Investigations.

Experiments in mosquito breeding were carried out particularly in respect of *A. sergenti.* Observations were continued during the period October—December 12th and signs of commencing hibernation looked for. The following is a brief description of the main experiments:— *A. sergenti* larvae brought to the laboratory on 29-10-31 in their second instar had reached the adult stage on 30-11-31, development taking place at ordinary room temperature. *A. sergenti* adults caught wild laid eggs in the laboratory on 17-10-31 on 13-11 31 and on 23-11-31. In the first series the eggs hatched on 22-10-31 and the larvae reached their fourth instar on 22-11-31, remaining in that condition up to the last date of observation, 10-12-31. In the second series the eggs hatched on 19-11-31 and the larvae became second instar on 10-12-31. In the third series the eggs hatched on 4-12-31 and on 10-12-31 were still in their first instar. No adults, therefore, resulted from these three experiments up to 10-12-31. The rearing experiments were carried out at room temperature, 13—17°C., a range which corresponds to that of the water in the streams, canals or puddles under rocks about the middle of November. Ordinary vegetation was added to the water and the water itself was changed every 3 or 4 days.

From the experiments certain deductions may be permissible:

(a) Development from second stage larvae to adults at room temperature continued for 30 days during November.

(b) Up to 10-12-31 no adults had developed from eggs, laid and hatched in the middle of October or in November. By that time second or fourth larval stages only were reached according to the time of egg laying.

It would appear reasonable to deduce that the larvae of *A. sergenti* enter their stage of hibernation about the end of November.

An observation worthy of record is that of cannibalism among anopheline larvae. On 21-10-31 *A. superpictus*, caught wild, laid eggs in the laboratory. Eggs hatched in the incubator at a temperature of 21.°C. on 25-10-31. The larvae reached their second instar on 3-11-31 and their fourth on 11-11-31, remaining in that stage till the last day of observation, 10-12-31. On 4-11-31 it was noted that only one third of the number of larvae of the second instar now remained from that seen on the previous day, two-thirds having disappeared except for their heads. It was difficult, indeed, to determine whether the larvae had been eaten while yet alive or after death when they had fallen to the bottom of the glass breeding jar. There was, however, a tendency for one larvae to nibble at its neighbour and it may be that such larvae somewhat injured by the nibbling might sink and be devoured by its aggressive companions.

C. CHEMICAL DIVISION.

1. Summary of Work Done.

A total of 8550 samples has been examined compared with 6359 in 1930. Customs and Excise samples account for nearly 50 per cent. of this increase (See Tables A and C.) The amount of advisory work for the Department of Customs, Excise and Trade has also increased considerably. The large number of samples of semneh dealt with gave opportunity for further study of the fluorescence test. Time was also found for a brief survey of the facts relating to the internal corrosion of aluminium radiator heads on motor vehicles and for the improvement of the laboratory technique in the examination of firearms and projectiles and further development of the bio-chemical side of the work.

2. Notes on the Various Branches of Work Undertaken.

(a) Milk.

Of the 4673 samples examined in the 14 centres equipped for the purpose 4.3 per cent. were below standard as compared with 2.9 per cent. in 1930 and an average or 4.9 per cent. for the preceeding ten years (See Table B).

(b) Oils and Fats.

Under this heading 1153 samples of edible oils and fats have been examined as compared with 198 in 1930. The large number of samples of semneh from Customs accounts for most of this increase. Of the 1043 samples of semneh and butter examined 5.8 per cent. have been found adulterated. Of these the samples taken from local factories and retailers number 106 of which 18 per cent. have been found adulterated. Much Australian butter is imported in bulk and then packed in wrappers printed locally. Many of these wrappers give no indication as to where the butter was packed, but state that the contents are "Certified" and sometimes "guaranteed pure" by the Australian Government. In reality all that the Australian Government certifies is that each consignment as it leaves Australia has been graded by an inspector. Suggestions regarding the regulating of packing and labelling have deen made.

Much of the so-called local butter is made from cream imported from Egypt.

Cotton seed oil appears to be little used now as an adulterant of olive oil and sesame oil.

Sunflower seed and areca nuts imported for oil production are now free of duty and the extent to which these compete with the indigenous oils as adulterants or substitutes is being investigated.

Though acid oils and offals for soap making are free of duty, unrefined olive oil except virgin oil is now a prohibited import. For Customs purposes virgin unrefined oil must contain not more than 2 per cent. acidity (as oleic). The fluorescence test has been of some value in distinguishing between refined oil and virgin oil.

The extent to which olive oil is being replaced by other materials in soap manufacture is indicated by the fact that 872 samples of acid oils and offals have been examined during the year.

(c) Government Food Contracts.

Forty-six samples have been submitted with tenders and in the case of the hospital supplies the analytical findings were the deciding factor in the adjudication of the contract.

(d) Alcoholic Liquors.

For Excise purposes 699 samples of liquors and raw materials have been examined as compared with 1083 in 1930. Twenty-four alcoholometers have been verified.

(e) Water.

In addition to the examination of 217 samples from drinking supplies 11 samples have been submitted by the Palestine Railways and the Haifa-Baghdad Railway Survey together with 12 samples of lime for the softening plant. The Geological Adviser has submitted 18 samples.

(f) Drugs.

The Inspector of Pharmacies has submitted 31 samples of drugs and pharmaceutical preparations. Dangerous drugs will be dealt wilth under "Criminal Investigation".

3. Criminal Investigation.

(a) Poisoning.

In connection with cases of human poisoning 27 specimens have been examined. In the 8 fatal cases, in which post-mortem specimens have been submitted, the findings were Carbon monoxide 3 (all one family); Lysol 1; Strychnine 1; negative findings 3.

In 108 cases of suspected animal poisoning 86 provided evidence of arsenical poisoning.

(b) Firearms and Projectiles.

The exhibits submitted have included 3 rifles, 11 cartridge cases, 5 revolver bullets and 2 hand grenades. In one case it has been demonstrated that the suspected rifle did not fire the cases found on the scene of the crime, while in another case it was shown that the cartridge case found on the scene was fired in the suspected rifle.

It has also been possible to show that a cartridge case found on the scene of a recent crime possesses the same bolt head impressions as a cartridge case concerned in a previous crime. The rifle responsible for the two crimes has, however, not yet been found.

(c) Questioned Documents.

In one case it has been possible to show that a revenue stamp had been removed from some other document. In two cases of alterations on cheques the ultra violet light showed illegible traces of yellow fluorescence under the words and figures denoting the amounts to be paid.

(d) Dangerous Drugs.

Of 20 samples of confiscated material 2 have been identified as novocaine adulterated with boric acid, 4 as raw opium and 10 as hashish (cannabis indica). Novocaine and cocaine are readily distinguished by the fluorescence test (Smith and Glaister — Recent Advances in Forensic Medicine).

(e) Other Crimes.

Exhibits have been examined in 3 cases of tree cutting and one of vitriol throwing. Of two coins submitted one has been found counterfeit.

4. Work for the Department of Customs, Excise and Trade

Data covering the past five years will be found in Appendix C.

In his capacity as Registrar of Patents and Designs the Director has consulted the Government Analyst in connection with several applications for patents envolving chemical processes. Much advice on Tariff classifications and other questions has been given.

5. Bio-Chemical Work.

Under this heading 310 specimens have been examined as compared with 200 in 1930. The tests and determinations undertaken include the following:—

(a) **Blood.** Sugar, uric acid, urea, non-protein nitrogen, chlorides, calcium, cholesterol, creatinine, xanthoprotein, indican, Van den Bergh reaction.

(b) **Urine.** Sugar, albumen, urea, uric acid, acetone, aceto-acetic acid, bile pigments, diastase.

(c) **Gastric Juice.** Total acidity, free hydrochloric acid, lactic acid, etc.

(d) **Stools.** Total fat, free fatty acids, neutral fat.

(e) **Human Milk.** Total solids, ash, fat, protein, lactose.

(f) **Calculi.** Qualitative and quantitative analysis.

6. Weights and Measures.

The Government Analyst was appointed "Keeper of the Standards" in 1930. The equipment necessary for the application of the ordinance in its present limited scope is not yet available.

7. Special Investigations.

(a) Internal Corrosion of Aluminium Radiator-heads on Motor Vehicles working in Palestine.

This investigation commenced on behalf of the Royal Air Force has been extended to include Government vehicles with special reference to ambulances (Morris Commercial).

It has been limited to a brief survey, the object of which has been to collect such data as will present the main aspects of the problem to the manufacturers and show them that these radiators are unsuitable for Palestine. The question of the composition of the "aluminium" has not been investigated but presumably the composition of the metal in use is known to the manufacturers.

Speaking generally the corrosion is associated (as is to be expected) with high salinity, much of which is present as chlorides of sodium and magnesium, and it appears that for this reason serious corrosion has so far been confined to vehicles working in the coastal plain. Some of the other factors influencing corrosion will be concentration and temperature in the radiator and the running hours under those conditions. Electrolytic action set up between the aluminium and other metals in the aluminium and the copper or brass parts is also a factor to be considered.

The Royal Air Force find the average life of a radiator using water from bores at Ramle and Sarafand to be less than one year. The Ramle water has chlorine 75 and total solids (anhydrous) 162 parts per 100,000 while that from Sarafand which is said to be better has chlorine 28, total solids 115, pH 7.7, nitric nitrogen 6.0 and ammonia 0.02. The Sarafand water after 26 days in a radiator contained chlorine 48, total solids 125, nitric nitrogen 2.3 and ammonia 3.4. This reduction of the nitrates to ammonia was confirmed by laboratory experiments and this may play a part in the corrosion. In the case of a Jaffa water containing chlorine 11, total solids 45, nitric nitrogen 0.9, ammonia 0.002, seven days in a radiator changed these to chlorine 15, total solids 32, (the temporary hardness had been deposited), nitric nitrogen 0.1, ammonia 0.45.

On an ambulance using this Jaffa water the radiator had a life of 4 years in which time 48,500 kilometres were run. Another ambulance on which the radiator lasted 3 years ran 28,000 kilometres using Haifa water containing chlorine 159, total solids 320, nitric nitrogen 0.3. These two ambulances are the only vehicles concerning which a full history could be obtained and the radiators from these have been examined and photographed in the laboratory.

The corrosion takes the form of pitting associated with a whitish deposit samples of which contained 68 per cent. Al_2O_3. The corrosion is most intense on the edge of the flange which bolts on to the tube assembly and it is near this flange that leaks and finally complete perforations first show themselves. Before actual perforation takes place pieces of corroded metal fall into the tubes causing serious overheating troubles. It has been ascertained that while working these two radiators were as a rule emptied weekly, and after any long runs. In brass or copper radiators frequent emptying and refilling tends to produce scale trouble, but where aluminium is concerned corrosion may be more serious than scale and therefore high concentration of salinity by frequent "topping up" is to be avoided.

At the time when the report on this investigation was submitted orders for new ambulances had already been placed and it is now learnt that they are in consequence to be supplied with brass radiator tanks.

(b) Fluorescence of Milk and Butter.

The canary yellow fluorescence of milk in ultra-violet light gives place to a bluish tint on standing and is regenerated on shaking with air. The destruction of the yellow colour appears to be analagous to the decolourisation of methylene blue in the "reductase" test. Samples of curd cheese behaved in a similar way.

In some 900 samples of genuine butters and semneh examined the fluorescence ranged between cream-white and yellow. Samples of "cocosene" have shown an intense blue fluorescence and it has been found that 10 per cent. of this will visibly affect the colour of butter fat. In practice it has been found that absence of any suggestion of yellow is suspicious while any bluish tint in butter fat is a fairly reliable indication of adulteration. Charcoal has been found satisfactory for removing artificial colouring matter.

(c) Examination of Firearms and Ammunition.

Considerable time has been spent upon improving the technique in the forensic examination of cartridge cases and firearms. A preliminary examination with a comparator microscope is followed by close examination of an image of about 10 diameters magnification on the focussing screen of a long extension camera with short focus lens. During this examination the cartridge case is rotated in oblique illumination from an arc lamp, which shows up any marks impressed upon the case by the bolt head or striker. The photographs obtained in this way require no subsequent enlargement. The whole examination is carried out in the dark room.

In order that more of this work may be undertaken by the Armourer, who is already in possession of a comparator microscope, the Commandant of Police has been furnished with details of the necessary equipment.

TABLE A.

SAMPLES EXAMINED DURING 1931.

Material	January	February	March	April	May	June	July	August	Sept.	October	Nov.	December	Total
Waters	15	16	32	14	26	28	22	23	32	19	16	12	255
Milks	360	342	443	455	405	391	460	296	356	453	342	370	4673
Alcoholic Liquors and Foods	61	190	93	99	231	254	145	127	209	124	154	253	1940
Aerated Waters, Cordials and Essences	1	2	3	—	1	1	2	14	1	—	1	3	29
Drugs and Disinfectants	—	6	4	9	2	—	4	1	7	10	3	1	47
Soaps, Mineral Oils and other Commercial Products	17	11	36	52	24	89	135	49	122	130	91	229	985
Medico-Legal and Chemico-Legal	15	7	86	19	9	24	15	34	40	10	27	15	301
Ores, Minerals and Metals	—	1	1	—	1	—	—	—	—	—	—	—	3
Bio-Chemical	17	10	18	18	32	22	21	48	43	34	30	17	310
Miscellaneous	—	—	3	—	—	2	2	—	—	—	—	—	7
Totals	486	585	719	666	731	811	806	592	810	780	664	900	8550

TABLE B.

MILK ANALYSIS IN THE CENTRAL LABORATORIES AND DISTRICTS, 1931.

District	Number of Samples	Number of Prosecutions
Jerusalem		
Hospilal Supplies	313	41
Street Vendors	266	
Jaffa		
Hospital Supplies	88	8
Street Vendors	342	
Ramle		
Hospital Supplies	—	6
Street Vendors	264	
Gaza		
Hospital Supplies	70	1
Street Vendors	183	
Tulkarem		
Kadoorie Agricultural School	278	—
Street Vendors	279	
Haifa		
Hospital Supplies	92	114
Street Vendors	627	
Acre		
Hospital Supplies	242	7
Street Vendors	123	
Nablus		
Hospital Supplies	10	5
Street Vendors	54	
Tiberias	204	12
Hebron	47	—
Bethlehem		
Hospital Supplies	124	1
Street Vendors	193	
Ramallah	387	8
Beersheba		
Hospital Supplies	260	—
Street Vendors	87	
Safad	140	—
Total	**4673**	**203**

TABLE C.

SAMPLES EXAMINED FOR DEPARTMENT OF CUSTOMS, EXCISE, AND TRADE 1927—1931.

Nature of Sample	1927	1928	1929	1930	1931	Totals
Alcoholic Liquors and Ingredients	88	1114	1146	1115	699	4162
Food Products and Ingredients (other than fats and oils)	26	37	28	4	17	112
Edible Fats and Oils	3	2	5	8	949	967
Non-alcoholic Beverages	—	2	—	2	5	9
Inedible Commercial Products	14	20	63	26	80	203
Acid Oils and Offals	2	48	292	264	872	1478
Alcoholometers (for verification)	—	—	77	—	24	101
Miscellaneous	3	1	6	2	—	12
Total	136	1224	1617	1421	2646	7044

APPENDIX I.

List of Statistical Tables.

Subject.	Page.
Anti-Rabic Institute, General Table	78
Bacteriological Examinations	75
Births, Deaths and Infant Mortality Rates 1927—31	12—13
Births, Deaths and Infant Mortality, 1931:—	
Jerusalem and Jaffa Districts	16
Haifa, Samaria & Galilee Districts	17
Summary for Palestine	18
Chemical Examinations of Samples	85—86
Disinfecting Service	19
First Aid Classes	53
Immigrants, Examination of	62
Infant Welfare, Attendances etc.	46
Infectious Diseases, Cases and Death Incidence, By Locations	22
By Months	23
Licences granted to Doctors, Pharmacists, Dentists & Midwives	57
Lunatics, Admissions etc., Government Hospital and Ezrath Nashim	49—50
Malaria, Laboratory Findings	77
" Cases among Dispensary Patients	25
" Routine Measures in Towns	28
" Routine Measures in Villages	29
" Spleen Rate, Town and Village School Children	25
Medical Observation of Persons arriving at Ports	63
Medical Surveillance of Persons Arriving in Palestine	63
Mental Hospitals Statistical Tables	50
Medical Boards, Examinations by	55
Milk Analysis	86
Nurses under Training	36
Nursing Staff, Government and Voluntary Hospitals	37
Ophthalmic Clinics, Government	47—48
Patients, Attendances etc., Government Dispensaries 1927—31	35
" " Government Dispensaries & Clinics, 1931	39
" " Village Clinics, Voluntary Organizations	35
" " Voluntary Dispensaries & Clinics	42—43
" Admissions, Government and Municipal Hospitals	38
" " Prison Sick Detention Wards	38
" " Voluntary Hospitals	40—41
Patients in Government, Municipal and Voluntary Hospitals, Classified by Religion and Nationality	44
Patients, British, Classification of Diseases	33—34
Patients, Lunatics, Admissions etc., Government Hospital and Ezrath Nashim	49—50
Quarantine, Record of Procedure with Vessels	63
" Medical Observation of Persons arriving at Ports in Palestine ...	63
" Medical Surveillance of Persons arriving in Palestine	63
Rabies, Animals Destroyed	30—80
" Statement of Control	79
Rainfall	25
School Children, Medical Inspection of	51
Spleen Rate, Malaria, Town and Village School Children	25
Tuberculosis, Cases and Deaths, Classification of	24
Trades and Industries	61
Vaccines, Dosage Manufactured	72
Vaccinations, Small-pox	21